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Executive Summary

The National Environmental Policy Act (NEPA) of 1969 requires federal agencies to prepare an Environmental Impact Statement (EIS) for any action they undertake that is likely to cause significant impacts to human health and the natural environment. The primary purpose of this EIS for the United States Highway (US) 281 Corridor Project is to assess the potential environmental effects of the implementation of the No-Build and Proposed Build Alternatives. The EIS will also serve as the primary document to facilitate review of the project by federal, state, regional, and local agencies, decision-makers, and the public. The EIS documents the anticipated social, economic, and environmental effects of the project and provides definition for appropriate mitigation measures. A Preferred Alternative will be recommended and documented in the Final EIS based on the Draft EIS and public and agency comments.

The EIS documents the Need and Purpose for the proposed project, presents a discussion of the alternatives considered, and addresses their anticipated social, economic, and environmental effects. The EIS contains six chapters: Need for and Purpose of Proposed Action (Chapter 1); Alternatives Considered (Chapter 2); Affected Environment and Environmental Consequences (Chapter 3); Indirect Effects (Chapter 4); Cumulative Effects (Chapter 5); and Public and Agency Coordination (Chapter 6).

ES.1 INTRODUCTION

The Federal Highway Administration (FHWA), the Texas Department of Transportation (TxDOT) and the Alamo Regional Mobility Authority (Alamo RMA) are proposing improvements to an approximately eight-mile stretch of US 281 extending from the south at Loop 1604 within the city of San Antonio to the north at Borgfeld Drive in northern Bexar County, Texas (**Figure ES-1**). The four direct connector ramps that comprise the northern half of the US 281 interchange with Loop 1604 are included in the proposed improvements. The proposed action has the logical termini of Loop 1604 on the south and Borgfeld Drive on the north, which provide rational end points for transportation improvements and review of environmental impacts. North of Borgfeld Drive, the next two major intersections with US 281 – Farm-to-Market (FM) 1863 and State Highway (SH) 46, respectively – are each already grade-separated interchanges. South of Borgfeld Drive, grade-separated interchanges occur at Sonterra Boulevard and Loop 1604 and continue south as part of the existing US 281 freeway. From Borgfeld Drive south to Redland Road, intersections are currently controlled by traffic signals and signs, a condition that for many years has given rise to calls to be improved with overpasses or grade-separated interchanges, along with direct ramp connections between US 281 and Loop 1604.

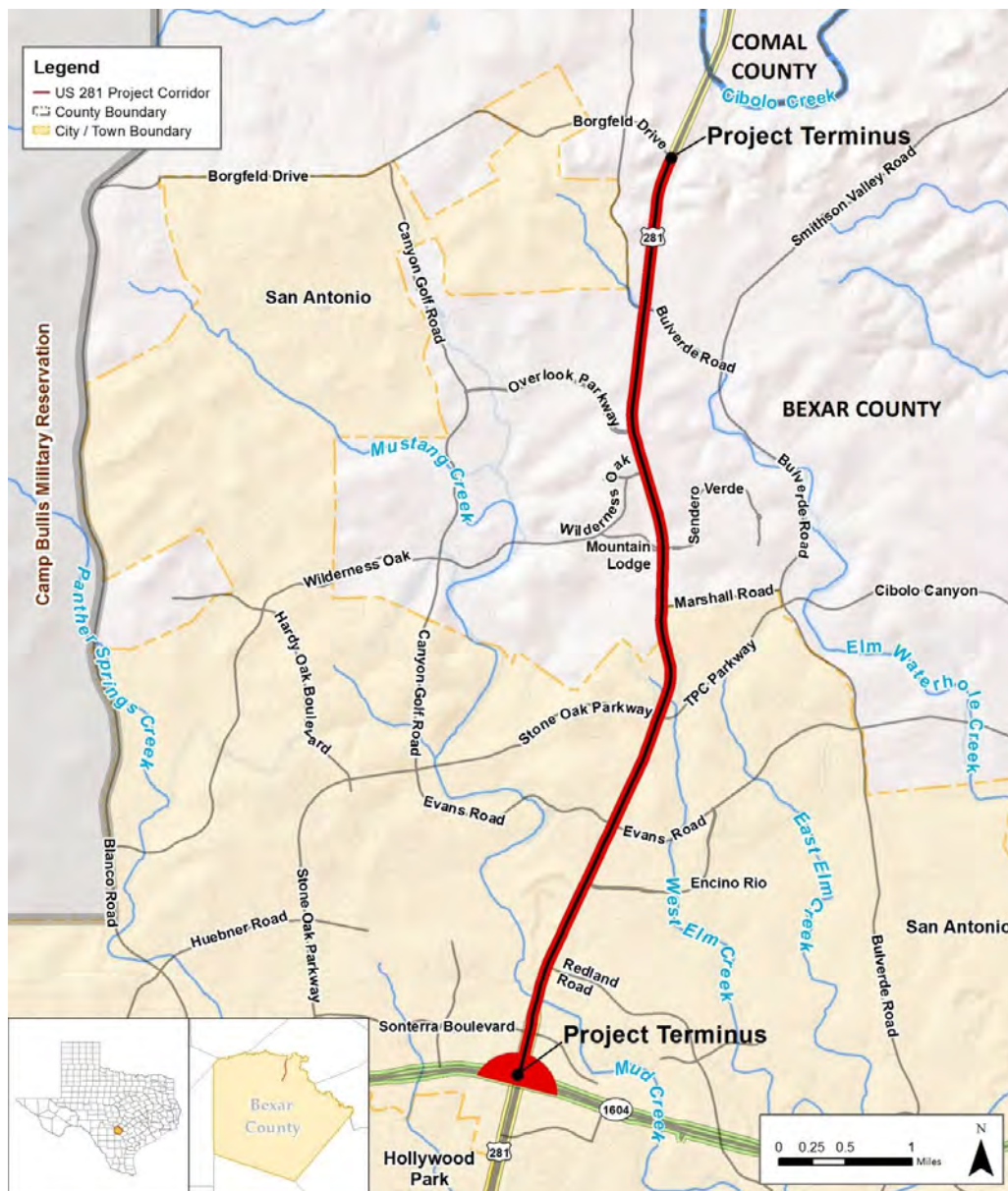
The proposed action has independent utility without the benefits of the implementation of any other transportation improvements. The project improvements would function as a usable roadway, would not require implementation of other projects to operate, and



would not restrict consideration of alternatives for other foreseeable transportation improvements.

US 281 from Loop 1604 to Borgfeld Drive is an integral part of the San Antonio-Bexar County Metropolitan Planning Organization's (SA-BC MPO) *Mobility 2035*, which is the region's long-range metropolitan transportation plan (MTP). *Mobility 2035* was adopted by the SA-BC MPO on December 7, 2009 and most recently updated on January 28, 2013. The project is included in *Mobility 2035* in two separate entries, a six-lane expressway (four non-toll lanes and two managed lanes through Stone Oak Parkway; six managed lanes from Stone Oak Parkway to Bexar/Comal County line). The second entry for the project in *Mobility 2035* is a four-lane expressway (four non-toll lanes to Stone Oak Parkway) and non-toll northern interchange connectors at Loop 1604. The project is shown in *Mobility 2035* to have a combined estimated cost of \$521,513,685 in year-of-expenditure (YOE) dollars.

Figure ES-1: Project location



Source: US 281 EIS Team, 2011.



ES.2 OTHER MAJOR ACTIONS IN THE VICINITY OF THE US 281 CORRIDOR PROJECT

Additional transportation improvements have recently been constructed, are under construction, and are planned in the vicinity of the US 281 Corridor Project: the US 281 Super Street, the southern half of the US 281 interchange with Loop 1604, and Loop 1604 improvements, as described below.

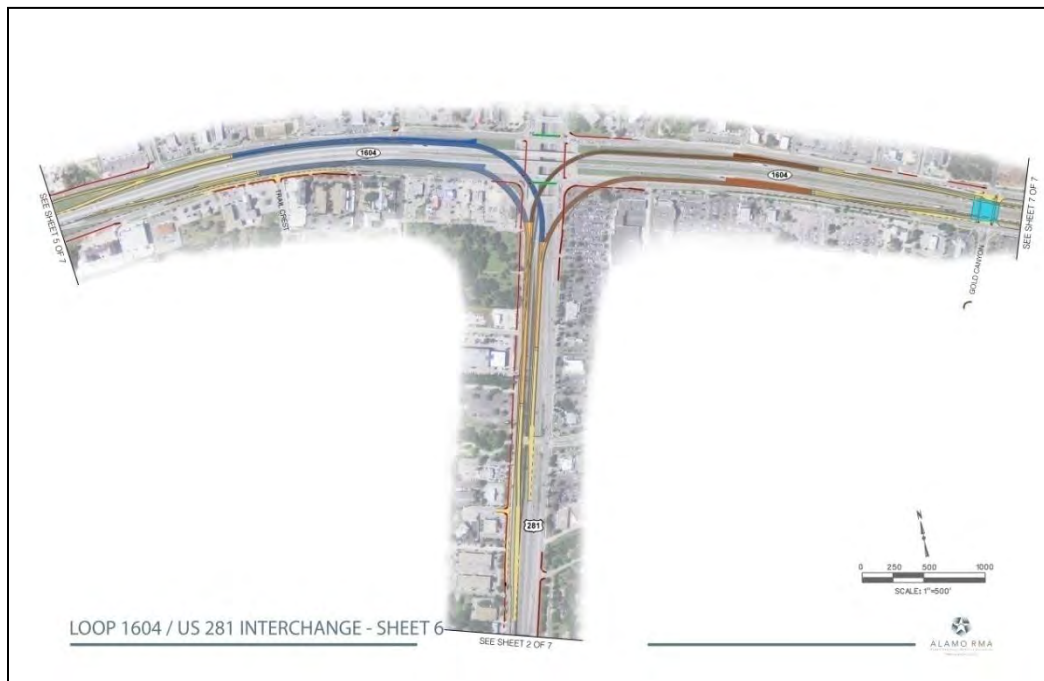
US 281 Super Street

The Alamo RMA received approval of a CE from FHWA in September, 2009 to construct operational improvements on US 281 at Encino Rio, Evans Road, Stone Oak Parkway and Marshall Road, commonly referred to as the US 281 Super Street. The 3.1-mile project, completed in October 2010, is designed to temporarily improve traffic flow and improve safety for motorists (Alamo RMA 2009). The Super Street improvements help reduce near-term peak hour congestion but would not satisfy 2035 forecasted travel demand.

US 281/Loop 1604 Interchange

The Alamo RMA received approval of a CE from FHWA in February, 2010 to construct improvements to the southern half of the US 281 interchange with Loop 1604. This project involves the construction of four non-toll direct connector ramps linking US 281 and Loop 1604 (**Figure ES-2**). It also includes frontage road and pedestrian improvements.

Figure ES-2: US 281 / Loop 1604 interchange improvements



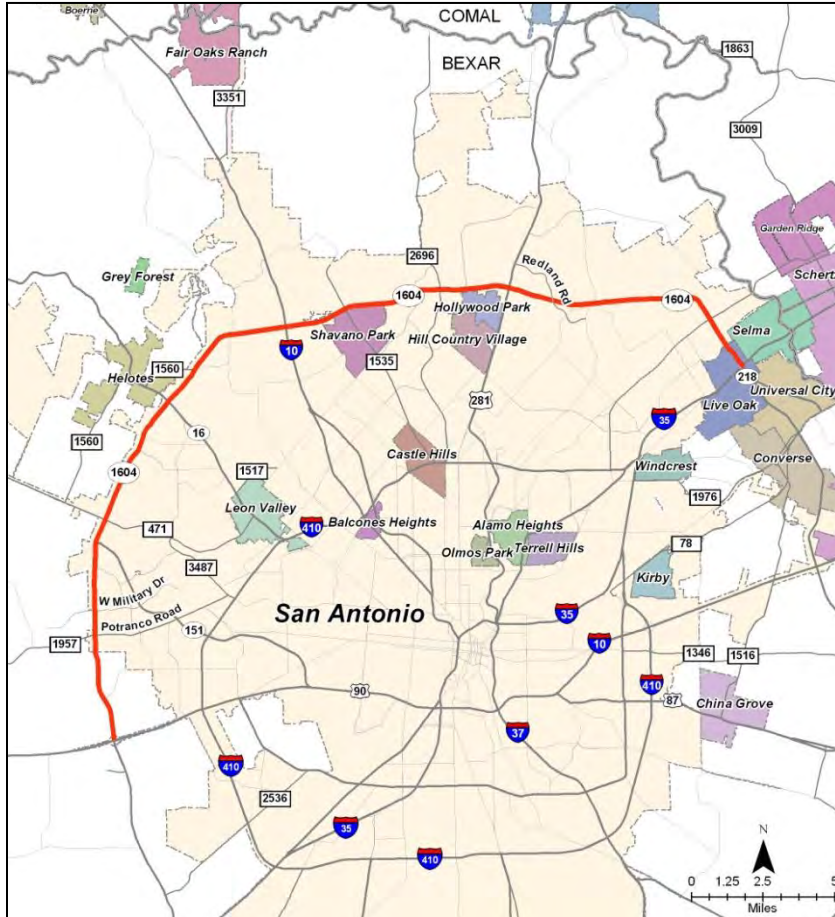
Source: Alamo RMA, 2010.



Loop 1604 EIS

An EIS for Loop 1604 is currently being conducted by the Alamo RMA, TxDOT and FHWA to examine and recommend strategies for addressing mobility and safety issues within an approximately 35.5-mile portion of Loop 1604 from US 90 West to IH 35 North in Central/Northwest Bexar County (**Figure ES-3**).

Figure ES-3: Loop 1604 EIS limits



Source: Alamo RMA, 2011.

Other Major Actions

The Comal County Major Thoroughfare Plan includes upgrading US 281 to a controlled access freeway immediately north of the US 281 Corridor Project, from the Bexar County line to the Kendall County line. Additional transportation projects, numerous private and public land development projects, and other infrastructure projects are occurring and are planned to occur in the vicinity of the US 281 Corridor Project.



ES.3 NEED FOR AND PURPOSE OF THE PROPOSED ACTION

Several attempts to improve US 281 project corridor have been made by FHWA and TxDOT over the last 25 years. Project planning, environmental studies, engineering and public involvement activities have been conducted almost continuously since the mid-1980s in support of numerous Categorical Exclusions (CE) and Environmental Assessments (EA) under the National Environmental Policy Act (NEPA). However, the only additional capacity provided as a result of these efforts was in 1990 with the construction of improvements between Bitters Road and Sonterra Boulevard, which encompassed the southern end of the US 281 project corridor.

The need for improvements to US 281 arises from historic and continuing trends in population and employment growth along the US 281 project corridor and within the surrounding areas. This growth generates increasing amounts of vehicle travel, which in turn impedes the function of US 281 to provide regional mobility and local access, leading to lengthy travel delays and a high rate of vehicle crashes. These transportation issues negatively affect the quality of life for communities surrounding the US 281 project corridor. The US 281 Corridor Project needs to address growth, functionality, safety, and community quality of life. Factors contributing to the need for improvements are briefly summarized below.

- The number of people living and working within the northern Bexar County and southern Comal County Census Tracts adjacent to the US 281 project corridor has increased dramatically since 1980. Population and employment is expected to continue growing over the next 25 years.
- The US 281 project corridor has had only minor capacity improvements since the mid-1970s. As a result, travel demand exceeds capacity during the morning southbound and evening northbound peak periods along the most heavily travelled section of the corridor, between Loop 1604 and Marshall Road. Traffic volumes are expected to increase substantially over the next 25 years.
- The high number of intersecting cross-streets and driveways that provide local access along the US 281 project corridor creates many conflict points that contribute to traffic safety and congestion problems.
- Crash rates on the US 281 project corridor are higher than the statewide rates for similar types of roadways.
- Failure to address the US 281 project corridor's transportation problems has contributed to declining quality of life for nearby communities. Harmful vehicle emissions pose health risks; excessive traffic noise is unabated; the corridor has become visually and aesthetically unappealing; and there is a lack of transportation choices due to the absence of public transportation service and facilities for walking and bicycling.



The purpose of the US 281 Corridor Project is to improve mobility and accessibility, enhance safety, and improve community quality of life. The project has logical termini and independent utility per FHWA regulations (23 CFR 771.111(f)). The following goals and objectives help to further define the purpose of the proposed action.

Address Growth

- Satisfy travel demand
- Be consistent with local and regional plans and policies
- Develop facilities for multi-modal transportation
- Allow for future high capacity transit

Improve Functionality

- Reduce travel time and increase travel speeds
- Reduce conflicts between local and through traffic
- Improve access to adjacent property

Improve Safety

- Reduce crash rates

Improve Quality of Life

- Avoid/minimize adverse social & economic impacts
- Avoid/minimize water quality impacts
- Avoid/minimize impacts to wildlife habitat
- Enhance air quality
- Minimize noise impacts
- Maximize use of non-toll funds
- Provide for aesthetics and landscaping
- Provide facilities for walking & biking

ES.4 ALTERNATIVES CONSIDERED

Based on the results of the alternatives analysis and input from public agencies and the public, two reasonable Proposed Build Alternatives were developed to minimize, to the extent possible, the potential for impact to the social, economic, and natural environment while addressing the need and purpose of the proposed project. The No-Build Alternative is considered the baseline alternative for comparison to other Proposed Build Alternatives.

ES.4.1 No-Build Alternative

The No-Build Alternative assumes the proposed US 281 improvements would not be built but does include all other transportation improvements as programmed in *Mobility 2035*.

The US 281 No-Build Alternative is based on the current conditions of the existing US 281 project corridor (**Figure ES-4**) and includes:

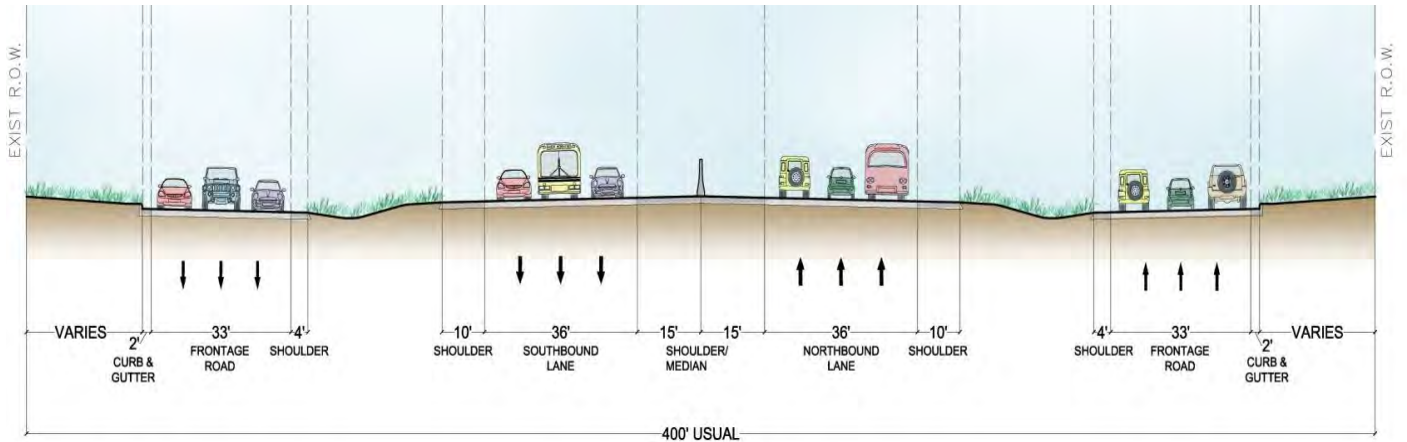
- US 281 Super Street: the operational improvements at the intersections of US 281 with Encino Rio, Evans Road, Stone Oak Parkway, and Marshall Road completed in 2010 (**Figure ES-5**)
- the four direct connector ramps that comprise the southern half of the US 281 interchange with Loop 1604 (anticipated completion in 2012)
- all planned regional transportation improvements included in *Mobility 2035*



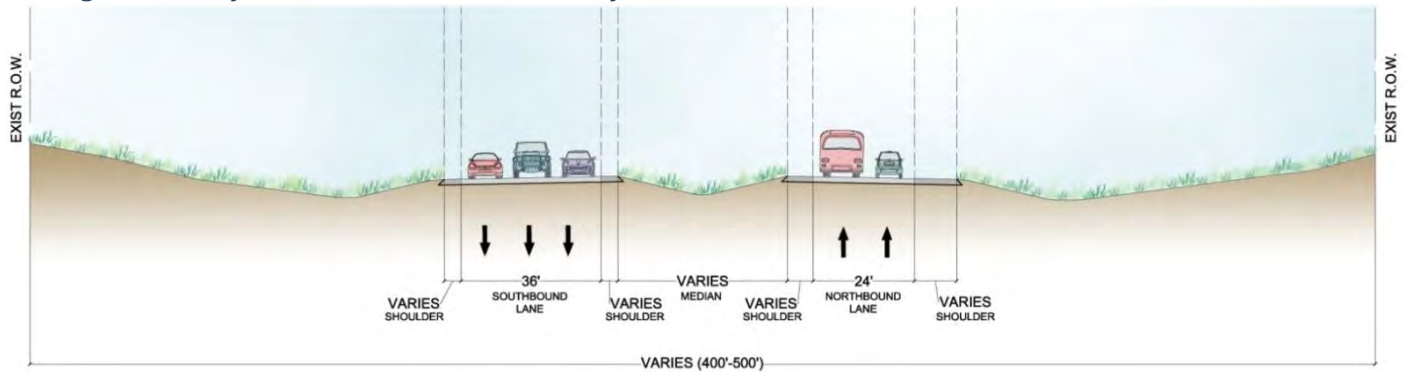
- (except for the planned improvements to the existing US 281 project corridor)
- short-term minor maintenance and safety improvements that maintain the continued operation of the existing US 281 project corridor

Figure ES-4: Typical sections, US 281 project corridor

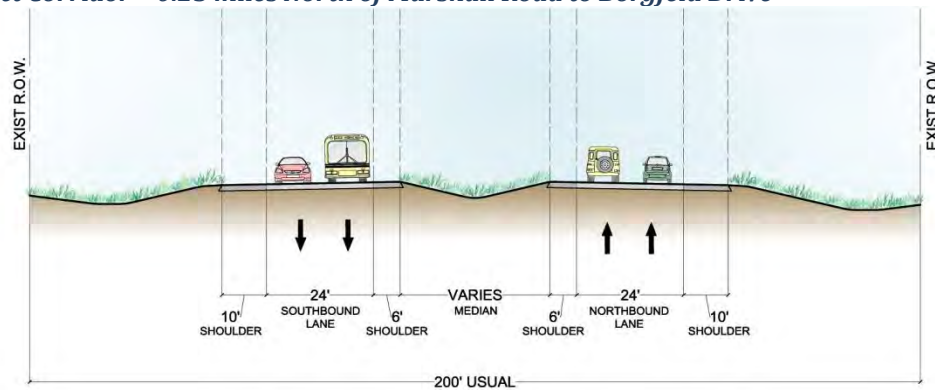
Existing US 281 Project Corridor - Loop 1604 to 0.2 miles North of Sonterra Boulevard



Existing US 281 Project Corridor - 0.2 miles North of Sonterra Boulevard to Redland Road



Existing US 281 Project Corridor - 0.25 miles North of Marshall Road to Borgfeld Drive



Source: US 281 EIS Team, 2011



1 **Figure ES-5: Aerial of US 281 Super Street at Evans Road**



2
3 Source: Microsoft, Bing Maps, 2011



A range of Congestion Management Process (CMP) projects aimed at improving air quality is included in the No-Build Alternative. In 2011, the SA-BC MPO area is in attainment of the National Ambient Air Quality Standards (NAAQS), but is vulnerable to be designated as non-attainment for ozone in the next few years. Examples of the SA-BC MPO's long range planning initiatives to manage congestion in CMP corridors such as the existing US 281 project corridor include:

- *Operational Management* (i.e., TSM) – techniques to optimize capacity and improve safety and reliability of the roadway system. For example, Incident Management focuses on clearing incidents, crashes and major events to allow traffic flow to resume.
- *Community Campaigns* (i.e., TDM) – strategies to reduce automobile use and congestion. The Alamo Area Council of Governments' "Commute Solutions Program" and "River Cities Rideshare" Program, and the SA-BC MPO's Walkable Community Program lead these efforts.
- *Growth Management/Land Use* – better control over land use to discourage urban sprawl and promote higher density levels and mixed use development to encourage travel by walking, bicycling and transit.
- *Access Management* – controlling the number and placement of access points such as driveways.

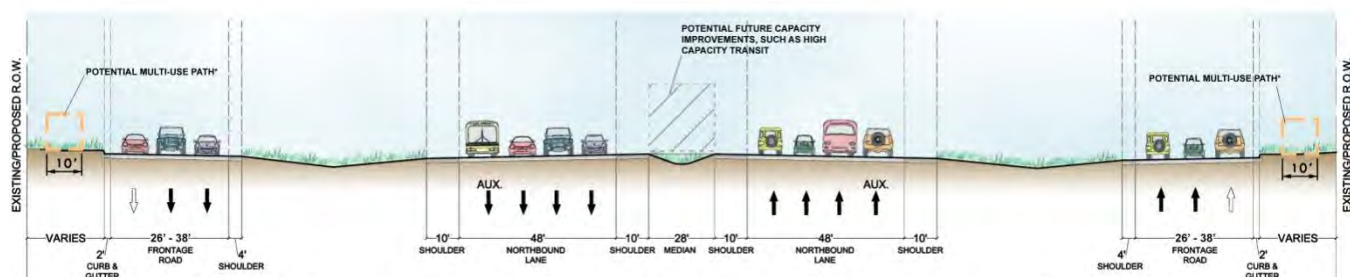
ES.4.2 Proposed Build Alternatives

Expressway

The Expressway Alternative consists of three, full access-controlled through travel lanes (also referred to as main lanes or express lanes) in each direction (**Figure ES-6**). No streets or driveways would access the through lanes directly. Grade separations would be provided at Sonterra Boulevard, Redland Road, Encino Rio, Evans Road, Stone Oak Parkway, Marshall Road, Wilderness Oaks, Overlook Parkway, Bulverde Road, and Borgfeld Drive to allow the express lanes to pass uninterrupted over the cross streets; thus, the express lanes would not intersect directly with these local streets. The express lanes would be situated between partial access-controlled outer lanes, also known as frontage roads. The frontage road lanes, which would cross local streets at grade via signalized intersections, would be continuous for the length of the proposed project and serve local traffic by providing direct access to businesses, neighborhoods and connecting streets. Under this alternative neither the existing US 281 travel lanes nor the existing US 281 Super Street would remain in place. Four direct connector ramps would be provided at Loop 1604 to provide mainlane to mainlane connections for US 281 motorists travelling westbound Loop 1604 to northbound US 281, southbound US 281 to eastbound Loop 1604, eastbound Loop 1604 to northbound US 281, and southbound US 281 to westbound Loop 1604. The proposed right-of-way (ROW) would typically be 400 to 450 feet wide (wider at the interchanges). North of Sonterra Boulevard, the main lanes would be separated by a 28-foot median capable of supporting potential future capacity improvements, such as high capacity transit. The Expressway Alternative requires approximately 128 acres of additional ROW.



1 Figure ES-6: Expressway Alternative - typical section



2 Pedestrian and bicycle facilities will be located within the
3 ROW on both sides of the frontage roads.

Pedestrian and bicycle facilities will be located within the
ROW on both sides of the frontage roads.

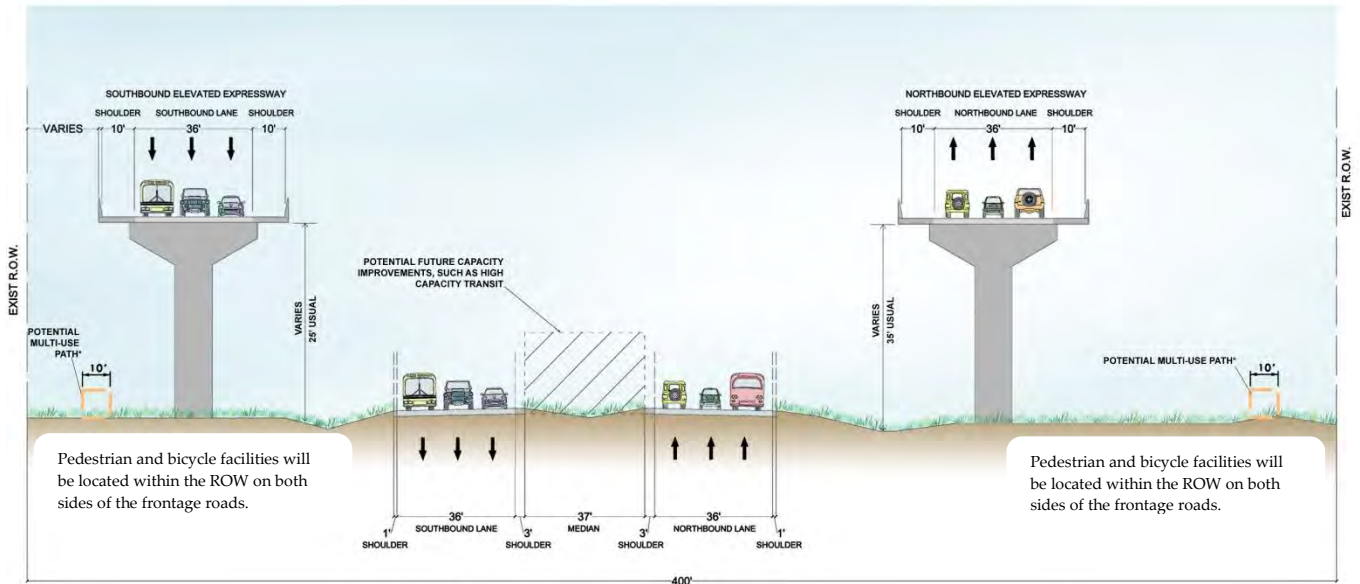
4 Source: US 281 EIS Team, 2011.

5 Elevated Expressway

6 The Elevated Expressway Alternative consists of two-to-three, full access-controlled
7 through travel lanes in each direction (three lanes from Loop 1604 to approximately
8 Overlook Parkway and two lanes north of Overlook Parkway to Borgfeld Drive). No
9 streets or driveways would access the through lanes directly. The express lanes would
10 be elevated for the length of the project corridor, passing uninterrupted over Sonterra
11 Boulevard, Redland Road, Encino Rio, Evans Road, Stone Oak Parkway, Marshall Road,
12 Wilderness Oaks, Overlook Parkway, Bulverde Road, and Borgfeld Drive. At Loop 1604,
13 the northbound and southbound elevated express lanes would connect directly to
14 eastbound or westbound Loop 1604. From Loop 1604 north to Stone Oak Parkway, the
15 elevated express lanes would be built on the outside of the existing US 281 roadway
16 (Figure ES-7) and would transition to the west side of the existing US 281 roadway
17 north of Stone Oak Parkway to Borgfeld Drive (Figure ES-8). The existing US 281 travel
18 lanes, including a portion of the US 281 Super Street, would remain in place as partial
19 access-controlled lanes, crossing local streets at grade via signalized intersections for the
20 length of the proposed project, serving local traffic by providing direct access to
21 businesses, neighborhoods and connecting streets. The proposed ROW would typically
22 be 384 to 400 feet wide. A median of 37 feet (average width) would provide for future
23 capacity improvements, such as high capacity transit south of Stone Oak Parkway.
24 After the northbound elevated express lanes shift to the west side of existing US 281, the
25 area for potential future capacity improvements would shift in between the elevated
26 structures and continue north to Borgfeld Drive. The Elevated Expressway Alternative
27 requires approximately 99 acres of additional ROW.

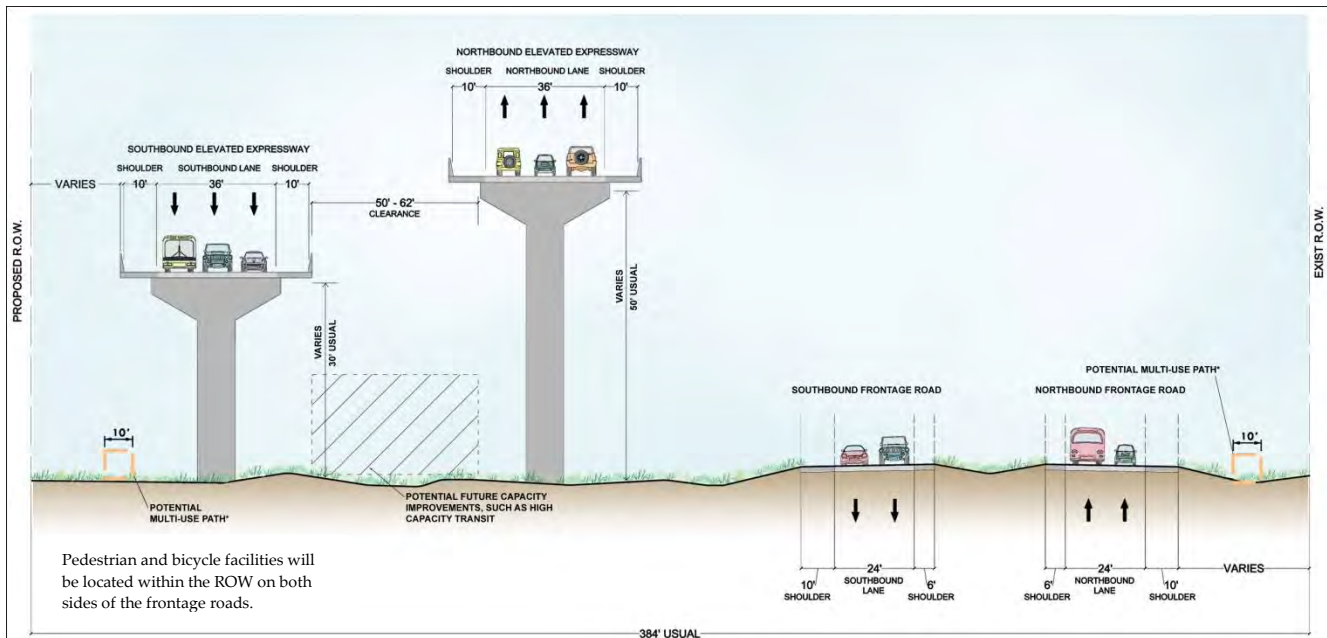


1 **Figure ES-7: Elevated Expressway Alternative - typical section (0.1 miles south of Evans Road)**



Source: US 281 EIS Team, 2011.

4 **Figure ES-8: Elevated Expressway Alternative - typical section (0.1 miles north Marshall Road)**



Source: US 281 EIS Team, 2011.



1 ES.4.3 Funding Options for the Proposed Build Alternatives

2 The SA-BC MPO has determined that US 281 project corridor improvements are to be
3 paid for through a combination of tolling and public funds. According to *Mobility 2035*,
4 the proposed four main-lanes from Loop 1604 to Stone Oak Parkway and direct
5 connector ramps at the northern half of the US 281/Loop 1604 interchange would be
6 non-toll. (Direct connector ramps at the southern half of the US 281/ Loop 1604
7 interchange are also non-toll.) Due to anticipated shortfalls in government funding for
8 transportation improvements, pursuing the US 281 Corridor Project as a purely tax-
9 funded facility could require that improvements be constructed in phases based on the
10 annual availability of tax dollars. According to *Mobility 2035*, one of the possible ways
11 to close the gap in transportation funding is to phase projects; that is, look for ways to
12 construct only critical sections of roadway instead of the ultimate build-out in the near
13 term. However, this approach could delay completion of the eight-mile US 281 Corridor
14 Project indefinitely because of funding limitations. Traditional highway funding on a
15 pay-as-you-go basis would also result in higher construction costs should future phases
16 encounter increases in material and labor costs. Future updates of *Mobility 2035*, or
17 future metropolitan transportation plans (MTPs), may result in a change in project
18 funding for the US 281 Corridor Project. Project alternatives in this Draft EIS are
19 therefore analyzed under both toll and non-toll scenarios. The Expressway and
20 Elevated Expressway Alternatives consist of three funding options.

21 The Expressway and Elevated Expressway alternatives each have three funding options:

- 22 • *Non-Toll*: All vehicles would be allowed to use the main lanes and frontage road
23 lanes without paying a toll. This funding option would require modification to
24 *Mobility 2035*.
- 25 • *Toll*: All vehicles, unless exempted by Texas State Law, would pay a fixed fee
26 toll, in accordance with Alamo RMA toll policy (Alamo RMA 2012), for access to
27 tolled main lanes. Under the State Toll Exemption Policy, approved by the
28 Texas Transportation Commission on April 26, 2007, the following types of
29 vehicles are granted free passage on toll roads: 1) authorized emergency
30 vehicles, 2) marked military vehicles, 3) contractors' vehicles working on the
31 construction, improvement, maintenance, or operation of the toll road, and 4)
32 any vehicle in the time of a declared emergency or natural disaster. The
33 frontage road lanes would be non-toll. If the Elevated Expressway was selected,
34 a modification to *Mobility 2035* would be required.
- 35 • *Managed*: Managed lanes are defined by the FHWA as "highway facilities or a
36 set of lanes where operational strategies are proactively implemented and
37 managed in response to changing (roadway) conditions" (FHWA 2007a).
38 Managed lanes can include operational elements such as HOV that control
39 access based on vehicle type and occupancy. For the US 281 Corridor Project, a
40 managed main lane would offer free passage for transit vehicles and for car
41 pools that are registered with a tag in place. All other vehicles, unless exempted
42 by Texas State Law, would pay a fixed fee toll, in accordance with Alamo RMA
43 toll policy (Alamo RMA 2012). The frontage road lanes would be non-toll. This
44 funding option would require modification to *Mobility 2035*.



ES.4.4 Mobility Elements Common to the Proposed Build Alternatives

The following strategies, facilities, landscaping and aesthetic improvements, and potential future transportation systems are included in each of the Proposed Build Alternatives. Proposed facilities and improvements are conceptual and would be developed and presented in more detail in the Final EIS for the Preferred Alternative.

Congestion Management Strategies

Both Proposed Build Alternatives include the projects, CMP elements, and strategies included in the No-Build Alternative. These strategies are described in detail in **ES.4.1** and would occur regardless which alternative is selected (Build or No-Build) in the US 281 EIS.

Northern Half of the US 281 Interchange with Loop 1604

Both Proposed Build Alternatives include the construction of the four direct connector ramps that comprise the northern half of the US 281/Loop 1604 interchange.

Bus Park-and-Ride Facility

Both Proposed Build Alternatives include provision of a bus park-and-ride facility in the immediate vicinity of the proposed US 281 interchange with Stone Oak Parkway/TPC Parkway. VIA Metropolitan Transit would operate the facility and provide express bus service to and from downtown San Antonio. More detailed design of the proposed transit facility will be included in the Final EIS as part of the Preferred Alternative.

Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities will be located within the US 281 project corridor ROW on both sides of the frontage roads of all Proposed Build Alternatives, in compliance with the USDOT *Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations* (March 11, 2010) and TxDOT's *Guidelines Emphasizing Bicycle and Pedestrian Accommodations* (March 23, 2011). These facilities could take the form of bikeable shoulders or wide curb lanes on the frontage roads, multi-use paths, sidewalks, audible signals and crosswalks. More detailed design of bicycle and pedestrian facilities would be included in the Final EIS as part of the Preferred Alternative.

Context Sensitive Solutions and Low Impact Development

The Proposed Build Alternatives include the design and implementation of Context Sensitive Solutions (CSS). CSS is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions (Center for Transportation and the Environment 2007). Potential CSS designs include low-impact development (LID) approaches to managing storm water runoff, using wind and solar energy, creating a sense of place through aesthetic treatments, and developing multi-modal connections. Aesthetic approaches include landscaping with native plants, artistic treatments for columns and retaining walls, and accent lighting.

Related to water quality, a CSS approach would feature natural processes of water filtration and pollutant removal. LID methods are more encompassing and mimic the "natural," pre-construction condition of storing, filtering, infiltrating and evaporating of water runoff close to the source, which decreases the downstream impact of increased



impervious cover. Examples of these include bioswales and rain gardens. More detailed CSS and LID design concepts will be identified for the Preferred Alternative, as appropriate, in the Final EIS.

Accommodation of Potential Future Capacity Improvements, such as High Capacity Transit

All Proposed Build Alternatives include space within the proposed right-of-way for potential future capacity improvements. These could take the form of additional travel lanes for transit or non-transit vehicles, or fixed-guideway facilities for public transportation. All Proposed Build Alternatives provide an “envelope” within which the vertical and horizontal geometry would be adequate to accommodate a potential future high capacity transit system. Examples of such a system include bus rapid transit, streetcars and light rail transit. As a potential future project not included in the currently proposed improvements addressed by this EIS, these capacity improvements within the US 281 project corridor would be subject to additional project approvals and public involvement requirements.

Table ES-1: Cost Estimates and Key Performance Measures

Comparison Measure	Unit	Alternative and Funding Option						
		No-Build	Expressway			Elevated Expressway		
			Non-Toll	Toll	Managed	Non-Toll	Toll	Managed
Cost (Millions)								
Construction Estimate	2010/2011 Dollars	N/A	\$ 376.9	\$ 389.8	\$ 389.8	\$ 581.6	\$ 589.9	\$ 589.9
ROW Estimate*	2010 Dollars		\$ 30.7	\$ 30.7	\$ 30.7	\$ 23.9	\$ 23.9	\$ 23.9
Engineering/ Professional Services Estimate	2010/2011 Dollars		\$ 26.4	\$ 27.5	\$ 27.5	\$ 40.7	\$ 41.4	\$ 41.4
Total Cost Estimate	2010/2011 Dollars		\$ 434.0	\$ 448.0	\$ 448.0	\$ 646.2	\$ 655.2	\$ 655.2
Performance Measures (in 2035)								
Average Daily Traffic (US 281 0.3 miles north of Sonterra)	Vehicles Per Day	125,000	205,000	195,000	205,000	180,000	170,000	170,000
Peak Hour Speed (US 281 Main Lanes, 0.3 miles north of Sonterra)	Miles Per Hour	12	36	43	39	39	45	43
Peak Hour Level of Service (US 281 Main Lanes)	Percent of Centerline miles at LOS D or Better	0%	75%			80%		

Source: US 281 EIS Team, 2011; SA-BC MPO Travel Demand Model, 2010

*Subject to future appraised land values.

ES.5 MAJOR ENVIRONMENTAL IMPACTS

ES.5.1 Air Quality

The Proposed Build Alternatives are similar in location and neither of the Proposed Build Alternatives would alter the topography significantly or restrict the dispersion of air pollutants. The No-Build Alternative would retain the current configuration of 2-3 main lanes in each direction with signalized intersections; and the Proposed Build Alternatives would provide 2-3 frontage road lanes and 2-3 mainlanes in each direction. All alternatives are expected to have increased traffic volume by 2035. Capacity increases afforded by the Proposed Build Alternatives and the separation of the mainlanes from cross-streets would allow a higher LOS to be maintained. The No-Build



Alternative, in comparison, would experience a lower LOS, resulting in increased future emissions due to congestion and idling vehicles particularly at the signalized intersections. The overall traffic levels are not expected to cause an exceedance of the National Ambient Air Quality Standards (NAAQS) for the No-Build Alternative or either of the Proposed Build Alternatives. As of March 2013, San Antonio and Bexar County are in attainment for all of the NAAQS pollutants.

This Draft EIS includes a basic analysis of the likely Mobile Source Air Toxics (MSAT) emission impacts of this project. A quantitative MSAT analysis will be completed after the identification of a Preferred Alternative and documented in the Final EIS.

ES.5.2 Noise

The dominant source of noise near either Proposed Build Alternatives is highway traffic. However, current noise levels, by themselves, do not determine whether noise impacts would occur. Rather, noise impacts are determined by comparing existing noise levels to future noise levels.

The traffic noise analysis included the following elements:

- Identification of land use activity areas that might be impacted by traffic noise
- Determination of existing noise levels
- Prediction of future noise levels
- Identification of possible noise impacts
- Consideration and evaluation of measures to reduce noise impacts

This analysis was completed in accordance with 23 CFR 772 and used FHWA's traffic noise model (TNM 2.5). FHWA has recently published new guidance, *Highway Traffic Noise: Analysis and Abatement Guidance* (FHWA 2010), and TxDOT's latest *Guidelines for Analysis and Abatement of Roadway Traffic Noise* (TxDOT 2011b). The preliminary noise analysis indicates that both Proposed Build Alternatives would result in potential noise impacts. The total number of potentially impacted noise receivers varied from 71 in the Expressway Alternative to 107-108 in the Elevated Expressway Alternative. The noise abatement measures most likely to be incorporated into either of the Proposed Build Alternatives would be the construction of noise abatement barriers for residential neighborhoods that are parallel and adjacent to the US 281 project corridor.

ES.5.3 Water Resources

Surface Water

Based on the additional fill within water crossings and additional acreage of impermeable surface area, the Expressway Alternative would have the greatest potential to impact jurisdictional waters and surface water quality in the US 281 project corridor. The increase in impermeable surfaces could lead to non-point source pollution (i.e., vehicle residues) due to runoff during rain events and flooding as a result of either of the Proposed Build Alternatives. Roadway runoff can have potentially substantial impacts to the water quality of streams as well as water quality downstream. Numerous constituents may be found in roadway runoff from multiple sources. These constituents can include: particulates, nitrogen, phosphorous, metals, salts, petroleum, pesticides, polychlorinated biphenyls (PCBs) and rubber. Any storm water runoff would either be allowed to run off the roadway, or it would be collected by retention/detention areas and redirected by drainage ways or culverts. While localized runoff contributed by



either of the Proposed Build Alternatives would represent an increase over existing conditions.

Under the authority of the U.S. Environmental Protection Agency (EPA), the State of Texas has authority to implement the Federal National Pollutant Discharge Elimination System (NPDES) program, which is the Texas Pollutant Discharge Elimination System (TPDES). The Texas Commission on Environmental Quality (TCEQ) administers Phase I storm water permits for construction projects disturbing five acres or more within the State of Texas. Since this project would include five or more acres of earth disturbance, the Alamo RMA would comply with the TCEQ TPDES Construction General Permit (CGP).

To address water quality issues during construction, a Storm Water Pollution Prevention Plan (SW3P) would be prepared prior to construction. The SW3P would be followed throughout construction phases to minimize sediment-laden storm water discharge to project corridor streams. The SW3P would be prepared pursuant to the TxDOT manual, *Storm Water Management and Guidelines for Construction Activities*. The SW3P may include, but is not limited to, silt fences, inlet protection barriers, hay bales, and seeding or sodding of excavated soils. Exposure of the soil surface would be minimized during all clearing activities in order to maintain soil integrity. All temporary erosion control measures would be implemented prior to the start of construction and maintained throughout the phases of construction. At the completion of construction, the TxDOT specifications, *Seeding for Erosion Control*, would be followed to restore and reseed all areas disturbed.

For post-construction controls, a combination of vegetative filter strips and retention would be utilized to control total suspended solids. Other areas of the ROW would be planted with native species of grasses, shrubs, or trees.

Groundwater

The US 281 project corridor crosses the Edwards and Trinity Aquifers, which supply water to millions of people in central Texas. The actual area of consideration for groundwater expands beyond the narrow ROW construction corridor along US 281 because of the nature and extent of these aquifers. The sensitive Edwards Aquifer Recharge Zone (EARZ) is found at the surface through much of this area. Much of the recharge to this aquifer is focused and channeled through several creeks that cross the outcrop areas. The remaining surface water flow eventually drains into the San Antonio River within Bexar County. Both the Edwards and Trinity Aquifers are karstic in nature and can quickly transmit potential contaminants long distances with little to no natural filtration.

The Edwards Aquifer is one of the most permeable and productive limestone aquifers in the United States. In the San Antonio region, the aquifer supplies drinking water to more than 1.7 million people and provides habitat for several endangered species. The Trinity Aquifer plays a lesser role in this region but is none the less designated as a major aquifer of Texas and regionally spans most of central Texas.

Both of the Proposed Build Alternatives have the potential to impact groundwater quality via contamination of metals and organic compounds, accidental spills from storage tanks on vehicles, petroleum fuels, and hazardous materials. The potential for groundwater contamination is increased due to the numerous karst features surrounding the project corridor. The karst features can act as a conduit for rapid



transmission of contaminants into groundwater. The existing roadway has unpaved and informal shoulders along the entire corridor from Loop 1604 to Borgfeld Drive and does not have a storm water drainage system that meets current TCEQ Water Pollution Abatement Plan (WPAP) standards. Modeled and traced flowpaths of groundwater in northern Bexar County have shown the potential for contaminants to reach water supply wells at rapid rates. These flowpaths have also shown water entering the aquifer in northern Bexar County flows towards Comal Springs, which provides habitat to endangered species.

Under the guidance of the Edwards Aquifer Protection Program, groundwater quality mitigation practices include: defining extent of contamination plumes, predicting groundwater flow paths, building and maintaining effective monitoring networks, and treating contaminated water. Other water quality controls include filter strips, sand filters, and extended detention basins. The implementation of these engineered water-quality control structures, or BMPs are put in place to help offset potential impacts through short-term retention or filtration prior to discharging to streams. By utilizing suitable BMPs for filtering storm water, the potential for groundwater quality degradation may be reduced, but not eliminated. In addition to BMPs, mitigation considerations will be given to LID approaches such as bioswales and rain gardens, which would offer a natural process of water filtration.

In addition to BMPs, CSS and LID are under consideration. CSS, related to water quality, offers a natural process of water filtration and pollutant removal. LID methods are more encompassing and mimic the “natural,” pre-construction condition of storing, filtering, infiltrating and evaporating of water runoff close to the source, which decreases the downstream impact of increased impervious cover. Examples of these include bioswales and rain gardens. Both of these mitigation measures will be analyzed for the Preferred Alternative in the Final EIS.

ES.5.4 Threatened and Endangered Species

The US 281 project corridor traverses an ecologically sensitive area. Potential habitat was identified for four federally listed species, four state listed species, and 17 rare but unlisted species within the US 281 biological study area (defined as 500 feet beyond the ROW for all the Proposed Build Alternatives) based on species or vegetative series documented by the U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department (TPWD). The federally listed species are the Madla’s Cave meshweaver, the ground beetles *Rhadine exilis* and *Rhadine infernalis*, and the Golden-cheeked Warbler (GCWA). Extensive field studies between 2009 and 2010 were conducted by the US 281 EIS Team, including habitat assessments and surveys for endangered avian and karst invertebrate species or their habitats.

Karst Invertebrates

No federally-listed karst invertebrate species were detected during 2010 presence-absence surveys for the US 281 Corridor Project and none are known to historically occur within the US 281 biological study area. The nearest recorded localities of federally-listed karst species in the area are for *Rhadine exilis*, which is known from Ragin’ Cajun Cave and Hairy Tooth Cave. These caves lie within Critical Habitat Unit 12 (USFWS 2009), the edge of impinges upon the US 281 ROW. The US 281 Corridor Project

Madla’s Cave meshweaver



Photo: Dr. Jean Krejca



may affect, but is not likely to adversely affect the Madla's Cave meshweaver and the two ground beetles, *Rhadine exilis* and *R. infernalis*, or their habitat.

It is possible that other potential karst features or caves may be revealed during construction activities. If this occurs, work would immediately cease within 344 feet of the feature, the feature should be covered, and a section 10(A)(1)(a) permitted karst biologist would inspect the site as soon as possible in order to evaluate potential species habitat (USFWS 2011).

Critical Habitat

The US 281 Corridor project slightly impinges upon CHU 12 (USFWS 2012). The USFWS characterizes this CHU as a low quality unit due to heavy urbanization and quarrying, inadequate for contributing to recovery but still needed for long-term survival of *Rhadine exilis*. The potential impacts from the US 281 Corridor Project will be analyzed and documented in the Final EIS.

Golden-cheeked Warbler

A habitat assessment performed in 2009 identified potential GCWA habitat in the US 281 biological study area. Based upon this assessment, there are approximately 28 acres of GCWA habitat in the existing ROW. Assuming that all GCWA habitat in the existing ROW would be cleared in addition to the proposed ROW needed to construct each of the Proposed Build Alternatives, the Expressway Alternative would impact approximately 65 acres, and the Elevated Expressway would impact approximately 56 acres. After two years of presence/absence survey using USFWS protocol (USFWS 2009; USFWS 2010c) no GCWA have been detected. Habitat losses continue due to current and pending development in the US 281 project corridor. In addition, nesting deterrents for the warbler are prevalent and likely increasing due to urbanization, including effects from typical nest predator and social parasite species such as the Great-tailed Grackle and Brown-headed Cowbird. Given the negative survey findings to date and decline of habitat quality, it is not likely that the GCWA will utilize the US 281 biological study area and the US 281 Corridor Project may affect, but is not likely to adversely affect the GCWA.

Golden-cheeked Warbler



Photo: U.S. Fish & Wildlife Service

The following guidelines would be followed during construction to avoid and minimize any potential impacts to the GCWA:

- limiting the vegetation removal in wooded areas to outside of the breeding season, which lasts from March 1 to September 1
- limiting removal of vegetation to that necessary for constructing the US 281 Corridor Project
- Locating construction staging areas away from known or potential GCWA habitat
- Re-seeding with native vegetation after construction

State Listed Species

Habitat for four state listed species, (two salamanders and two reptiles) occurs within the US 281 biological study area of the Proposed Build Alternatives. The US 281 Corridor Project is not likely to negatively impact most of these species because their habitat is marginal, no individuals were observed and the impacted potential habitat is



common in the vicinity of the US 281 project corridor. Efforts would be made to avoid direct harm to individuals of state listed species during construction in accordance with TPWD regulations.

Rare Species

Habitat for 17 rare species (4 plants, 7 crustaceans, 1 insect, 1 amphibian, 2 reptiles, and 2 mammals) that are not state or federally listed was identified as potentially occurring within the US 281 biological study area. No observations of these species were made during on-site habitat assessments in 2010 within the US 281 biological study area where right-of-entry was allowed. Efforts would be made to avoid direct harm to individuals of rare species during construction, particularly those most vulnerable to earth moving equipment and water quality impacts.

In summary, based on background reviews, field investigations, and coordination with USFWS the US 281 Corridor Project “may impact” 22 state-listed or rare (un-listed) species and “may affect, but is not likely to adversely affect” 8 federally-listed species. Of these 30 species, 6 of them are dependent on Comal Springs (Cascade cave amphipod, Peck’s cave amphipod, Long-legged cave amphipod, Comal Springs riffle beetle, Comal Springs dryopid beetle and the Fountain Darter) and would not be directly impacted by this project, but there is potential for an indirect impact as a result of subsurface flow paths (see **Section 4.5**).

ES.5.5 Indirect Effects

National Cooperative Highway Research Program Report 466 identifies three broad categories of indirect effects (NCHRP 2002):

1. Encroachment-alteration effects. These effects may result from changes in ecosystems, natural processes, or socioeconomic conditions that are caused by the proposed action, but occur later in time or farther removed in distance. Examples include long term changes in stream hydrology downstream from a waterway crossing or gradual effects on a neighborhood’s cohesion as a result of roadway encroachment, displacements, or changes in access.
2. Project-influenced development effects. Sometimes called induced growth, or the “land use effect”. For transportation projects, induced growth effects are most often related to changes in accessibility to an area, which in turn affects the area’s attractiveness for development.
3. Effects related to project-influenced development. These are impacts to the natural or human environment that may result from project-influenced changes in land use.

Indirect effects “...are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.”

*The Council on Environmental Quality (CEQ)
(40 CFR 1508.8(b))*

Indirect effects are (or will be)

- caused by the proposed action
- analytically focused on the impact-causing activities associated with the proposed action and its alternatives and the environmental impacts associated with those activities



The study area for indirect effects is referred to as the Area of Influence (AOI), which represents the geographical area within which the probable indirect effects of the proposed project, including induced land development effects, are likely to occur. The AOI for the US 281 Corridor Project covers 356,547 acres, approximately 560 square miles, in northern Bexar, western Comal and small parts of Kendall and Blanco Counties (**Figure ES-9 and Figure 4-1**). It was developed using a combination of methods: (1) a select link analysis utilizing the SA-BC MPO's 2035 travel demand model; (2) an analysis of travel time estimates for trips utilizing the corridor; (3) consideration of the competing influence of other major roadways, like Loop 410; (4) other minor adjustments in consideration of observed development patterns; and (5) consideration of the recommendations from the US 281 EIS Land Use Panel.

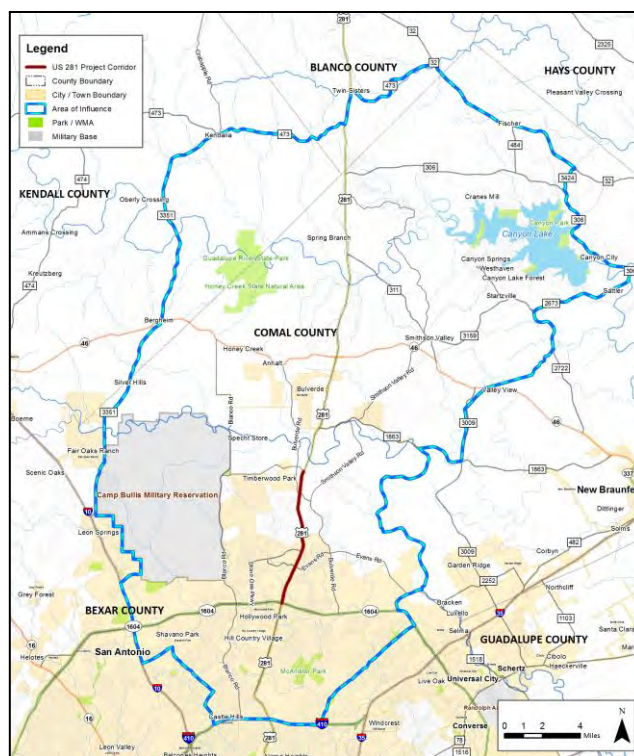
The proposed US 281 Corridor Project would likely spur development within the AOI. Implementation of either of the Proposed Build Alternatives would lead to growth that may have effects upon the human and natural environment. To forecast indirect land use effects of the proposed project, the US 281 EIS Team invited a group of individuals with expertise in land use and development within the AOI to participate in a collaborative judgment Land Use Panel. The panel was comprised of planners, engineers, school district officials, land appraisers, non-government organization leaders, and other individuals with demonstrated knowledge in growth and development in the area who were willing to lend their time and expertise.

Overall, the US 281 Land Use Panel predicted an area totaling approximately 37,000 acres of currently undeveloped and uncommitted land within the AOI as likely to be subject to development by 2035 under the US 281 No-Build scenario. The panel further predicted an additional area initially estimated at about 17,000 acres that would be subject to development by 2035 if the proposed US 281 transportation improvements were constructed. The approximately 17,000-acre induced development area is concentrated in the northern half of the AOI, extending from the Honey Creek area in the west, north to the intersection of US 281 and Rebecca Creek Road, and around the Smithson Valley area in the east. The area predicted by the US 281 EIS land use panel to be subject to induced land development is confined to Comal County and does not extend into Bexar, Kendall, or Blanco County.

The panel was asked to predict whether the area they had identified as subject to induced development (17,000 acres) would become larger or smaller depending on which of the Proposed Build Alternatives was constructed. The panel thought that an additional 10 percent would be induced by the Expressway Alternative, and an additional 12 percent by the Elevated Expressway Alternative.

As an additional refinement, the panel was asked how the various funding options

Figure ES-9: Area of influence



Source: US 281 EIS Team, 2010
A full page figure can be found in Chapter 4.



(non-tolled, tolled, or managed lanes) would further modify the areas subject to induced growth identified for each Proposed Build Alternative. Most of the participants indicated “not much change” or “no change.” Some panel members thought that the tolled or managed lane options would result in reductions in the number of potential commuters, and therefore a reduction in the estimated extent of induced development, by as much as three percent for tolled and one percent for managed lanes

Recognizing the lack of precision inherent in the overall predictive process, these plus-or-minus percentages were applied to the generalized prediction of induced growth to arrive at a comparative approximation, in acres, of the induced growth effects of the various design and funding options. The Elevated Expressway Alternative, non-tolled, was estimated by the panel to have the largest effect, at approximately five percent of the AOI, or approximately 19,100 acres. The Expressway Alternative, tolled, had the lowest effect, approximately 18,100 acres, which is also approximately five percent of the AOI.

Potential indirect effects of the US 281 Corridor Project on water quality and threatened and endangered species are briefly summarized below.

Surface Water Quality

US 281 is designated as a through-traffic hazardous cargo route; thus, in addition to non-point source pollution (i.e., motor oil) potentially entering the aquifers via storm runoff, a larger and improved transportation facility would increase the probability of hazardous material spills due to accidents (such as rollovers) involving cargo trucks. Hazardous material runoff could substantially degrade the water quality of impacted streams and portions of the Edwards and Trinity Aquifers within and adjacent to existing and proposed ROW; especially after storm events. Karst aquifers are well documented to rapidly transmit surface water into the subsurface through systems of enhanced permeability channels, such as sinkholes, faults and caves; thus, should a spill occur on US 281, it could substantially impact water quality in a short time period based on the porosity and interconnectedness of the aquifers.

Both Proposed Build Alternatives are designed to facilitate increased traffic volumes and with more cars and trucks using a proposed facility the potential for spills of hazardous materials increases. This increased potential would most likely affect aquifer water quality, possibly substantially, as well as the water quality of the jurisdictional streams that traverse US 281 via runoff during rain events.

As it exists now, the US 281 project corridor is classified as a divided, urban principal arterial in the south and a divided, rural principal arterial to the north, from Stone Oak Parkway to Borgfeld Drive. In addition, the current facility has unpaved and informal shoulders along the entire corridor from Loop 1604 to Borgfeld Drive. The existing roadway also does not have a storm water drainage system that meets current TCEQ WPAP standards, which is required for any regulated activity proposed on the Edwards Aquifer Recharge Zone, such as the construction of roads and highways. For these reasons, existing conditions of the US 281 project corridor are such that any hazardous spill from cargo truck accidents may not be well-contained. Conversely, both the Expressway and the Elevated Expressway Alternatives would involve the construction of storm water drainage facilities (i.e. detention and retention ponds), in accordance with the EAA and TCEQ policies and rules, that would better capture and contain potential hazardous materials spills; assuming the pavement has dry conditions. In



effect, the increased impervious cover from both Proposed Build Alternatives would act as a capture basin from potential spills; whereas, the existing facility would most likely not contain spills to the same degree. However, this assumes that the pavement is dry on the existing facility and no rain events occur subsequent to a spill. During a rain event, a hazardous spill has the potential to spread and travel at a faster rate into storm water facilities making it more difficult to contain.

The increase in impervious cover from each of the Proposed Build Alternatives, as well as planned storm water drainage structures, would alter the flow regime and drainage patterns of the immediate area surrounding the US 281 Corridor. The alterations or encroachment on drainage patterns may indirectly impact the ecological balance of nutrient and water transport into potential karst habitat, which may support sensitive karst species. Like most karst areas, there are few surface streams with most water moving through underground cavities. Decreases in the flow of water or infiltration can result in excessive drying and may hinder decomposition, while increases can cause flooding that drowns air-breathing species and carries away available nutrients (USFWS 2008). Viable karst habitat is dependent on stable temperatures, high humidity and nutrients (for example from leaf litter) that enter from the surface. In addition, alterations to surface topography, including decreasing or increasing soil depth (i.e. cuts) or adding non-native fill, can change the nutrient flow into karst habitats (USFWS 2008).

The area subject to US 281-induced development is primarily within the upper Guadalupe River drainage area, with lesser but not inconsequential amounts located in the Cibolo Creek and Dry Comal Creek drainage areas; a small amount occurs on lands draining directly to Canyon Lake. The small amount of direct drainage to Canyon Lake does not alleviate potential for water quality effects to this waterbody because pollutant loading to the upper Guadalupe River may affect Canyon Lake. There are no areas of projected induced development in the drainage areas for the Blanco River, the Guadalupe River below Canyon Dam, Salado Creek, Leon Creek, and the upper San Antonio River; thus, water quality effects related to induced development in these surface waterbodies is not anticipated.

Groundwater Quality

Both of the Proposed Build Alternatives would be constructed over the Recharge and Contributing Zones of the Edwards Aquifer. The Recharge Zone is where large quantities of water flow in the aquifer and, according to the Edwards Aquifer Authority, approximately one-half of recharge occurs when streams and rivers traverse the recharge zone and streamflow goes underground. The balance of recharge occurs when rain falls directly on the Recharge Zone and surface runoff enters upland recharge features. The Contributing Zone is the drainage area of the aquifer where the land collects water which runs off into streams that recharge the aquifer as they cross the Recharge Zone. Of the approximately 7.9 miles of the proposed US 281 project corridor, a majority (approximately 6.2 miles), of the proposed improvements to US 281 would occur in the Recharge Zone and approximately 1.7 miles would occur in the Contributing Zone.

Increasing impervious cover via construction of a larger transportation facility has the potential to add non-point source pollution to areas of the aquifer that are vulnerable to pollutant inflows. Karst aquifers are highly susceptible to contamination due to rapidly transmitting surface water into the subsurface through systems of enhanced permeability channels, which include solution-enlarged fractures or joints, faults,



1 solution cavities, solution sinkholes, collapse sinkholes, caves, or combinations of these
2 features. The magnitude of the potential indirect impact of increased road pollutant
3 loads would be greatest in the Expressway Alternative (86 additional acres) and the
4 Elevated Expressway Alternative (83 additional acres) and would present the greatest
5 potential for indirect effects due to the largest amount of introduced or additional
6 impervious cover (larger transportation facility) into the Recharge and Contributing
7 Zones. Pollutants such as petroleum products (i.e., motor oil and gasoline) and
8 dissolved metals from vehicles using US 281 can collect on impervious surfaces and,
9 over time and in between rain events, become concentrated. Subsequent to rain or flood
10 events, these pollutants would be washed into corridor streams, which would channel
11 runoff into aquifer recharge and contributing areas.

12 There is a potential for water quality effects to the Edwards Aquifer related to induced
13 development. There are two potential pathways for contamination whereby stormwater
14 runoff from induced development may impact water quality in the aquifer: (1)
15 stormwater from developed areas on the Edwards Aquifer Contributing Zone that is
16 transported by Cibolo and Dry Comal creeks, which recharge the aquifer within and
17 downstream of the AOI; and, (2) the potential for direct recharge of the aquifer by
18 contaminants in stormwater on the portion of the induced development area that is
19 projected to occur over the Edwards Aquifer Recharge Zone.

20 It should be noted that the upper Guadalupe River and Canyon Lake drainage areas
21 within the AOI, while within the watersheds of the Edwards Aquifer Contributing Zone,
22 are not considered to be effective contributing areas for the purposes of this water
23 quality analysis, because of the overwhelming influence of Canyon Dam on water
24 quality characteristics. Clearly, the surface water in these watersheds is released to the
25 middle Guadalupe River segment, which recharges the Edwards Aquifer downstream
26 of Canyon Dam. However, the dam and reservoir influence the water quality through
27 detention, settling and accumulation processes that alter pollutants before the water is
28 released below Canyon Dam. Pollutants such as bacteria and oxygen-demanding
29 substances may be degraded, while other more persistent pollutants such as nutrients
30 and heavy metals tend to accumulate in biomass and sediments. There is no induced
31 development projected to occur in the other AOI drainage areas that are within the
32 Edwards Aquifer Contributing Zone and/or Recharge Zone, including the upper San
33 Antonio River, Salado Creek, and the Blanco River drainages.

34 The induced development-related water quality effects are probable, yet they are
35 considered to be of limited magnitude, due to the limited extent of induced
36 development that is projected to occur in the Cibolo and Dry Comal drainage areas;
37 which is a relatively minor proportion of these drainage areas within the AOI. The
38 induced development area projected to occur within the Cibolo and Dry Creek drainage
39 areas is between approximately 4,400 acres and 4,600 acres, depending upon which
40 Proposed Build Alternative is implemented, compared to a total of 96,811 acres of
41 drainage area within the AOI. Likewise, the induced development area that is projected
42 to occur over the Edwards Aquifer Recharge Zone is 610 acres for the Expressway
43 Alternative and 687 acres for the Elevated Expressway Alternative. These are
44 considered to be minor, but not inconsequential, amounts of development area relative
45 to the AOI total of 69,756 acres over the Recharge Zone. In relative terms, the projected
46 induced development in the Cibolo and Dry Comal drainage areas represents five
47 percent of their drainage areas within the AOI. The projected induced development
48 over the Edwards Aquifer Recharge Zone would affect one percent of the Recharge



1 Zone area within the AOI.

2 **Threatened and Endangered Species**

3 Potential habitat for four federally-listed species (Madla's Cave meshweaver, the ground
4 beetles *Rhadine exilis* and *Rhadine infernalis*, and the GCWA) was identified within the
5 footprint of both Proposed Build Alternatives. While there are no federally-listed
6 endangered or threatened karst invertebrates that are known to occur in the Proposed
7 Build Alternatives ROW, surveys in 2010 within the existing ROW and within 500 feet of
8 the existing ROW revealed a number of potential karst features that required further
9 investigation based on USFWS (2006) guidelines. Presence/absence investigations (2010)
10 of karst invertebrate habitat completed in all identified and right-of-entry approved
11 features requiring surveys resulted in no detections of listed karst invertebrate species.

12 To date, no endangered songbirds have been found within the US 281 project corridor
13 despite two years of presence/absence surveys (2009-2010). The encroachment-
14 alteration effects on listed birds, surface water aquatic species (mussels, turtles and fish)
15 and some aquifer species (salamanders and fish) are not expected to be substantial.
16 Implementation of BMPs to control erosion, sedimentation in area streams, and post
17 construction total suspended solids would minimize encroachment-alteration effects to
18 stream channels and associated habitat.

19 At this time no karst invertebrate critical habitat is designated outside of Bexar County
20 in the AOI. Therefore, indirect effects on karst invertebrates would be limited to
21 potential encroachment-alteration effects described above. However, the listed species
22 could occur within karst features currently not known to harbor them in induced
23 development areas in the AOI. It is possible that rare or as-yet undescribed species,
24 while currently un-listed by TPWD or USFWS as threatened or endangered, could be
25 identified in the induced development area in the AOI and become listing candidates.
26 Effects related to induced development to currently-listed or potentially future-listed
27 terrestrial karst species cannot be reliably quantified.

28 Because of groundwater flow paths that connect recharge points near the US 281 ROW
29 and discharge at Comal Springs, less than 20 miles away, a contaminant spill along the
30 roadway could potentially affect federally-listed invertebrate species at the springs. It is
31 therefore determined that the project may affect but is not likely to adversely affect these
32 species.

33 Potential GCWA habitat totals within the area subject to induced development range
34 from 5,057 acres to 7,668 acres depending on the Proposed Build Alternative and the
35 data used. To the extent that some portions of the above-referenced amounts of
36 potential habitat might be occupied by the GCWA, this represents a substantial impact
37 from projected induced development.

38 The AOI is within the USFWS Black-capped Vireo (BCVI) Recovery Region 3 – Southeast
39 Edwards Plateau Recovery Region (USFWS 1991). There has been a recommendation by
40 the BCVI Population and Habitat Viability Assessment Report (USFWS 1996b) to redraw
41 the recovery region which would place the AOI in proposed Recovery Region 2 –
42 Edwards Plateau Recovery Region. The USFWS completed a recent status review of the
43 vireo which assessed the current status of the species in the context of these revised
44 recovery region boundaries, and recommended that the species be down-listed to
45 threatened status (USFWS 2007).



For a variety of reasons, BCVI habitat is virtually impossible to detect using remote sensing methods and no reliable models are available for large scale habitat quantification. This is due to the scrubby, successional and often disturbance-related nature of BCVI habitat in the southeastern Edwards Plateau Ecoregion. Given the inability to quantify potential habitat impacts to this species, it is even more difficult to quantify indirect effects resulting from induced development. The general raw ingredients are present for BCVI habitat in the AOI and it is reasonable to assume some habitat will be displaced by induced development.

ES.5.6 Consideration of Mitigation for Indirect Effects

Because mitigation, in the NEPA context, implies actions or commitments that go beyond basic compliance, the existing and expected regulatory requirements associated with each resource type establish a baseline level of resource protection to consider in an evaluation of the need for mitigation. There is a range of public and private programs and initiatives which could potentially be applied to address and mitigate indirect effects within the US 281 AOI in ways that go beyond regulatory compliance.

FHWA policy limits the use of federal funds for mitigation to impacts that can be shown to “actually result from the Administration actions” (23 CFR Sec. 771.105), effectively limiting consideration of mitigation commitments for indirect impacts. TxDOT (2009c) notes that implementing a needed mitigation measure for indirect or cumulative impacts “is often beyond the jurisdiction of FHWA, TxDOT, or other cooperating agencies”. In such cases, the guidance recommends listing the agencies that have regulatory authority, recommending actions that other agencies might take, and thereby disclosing the mitigation needs to the public. The kind of broad-based, long term indirect effects that are likely to be associated with the proposed US 281 Corridor Project would probably be resistant to simple or direct mitigation initiatives within the jurisdiction of one or even a few responsible agencies.

In a high growth area like the US 281 AOI, where the potential for both induced and other foreseeable future development is substantial, it is difficult to sort out cause-effect impact relationships in a way that would clearly point to any single action or program with respect to particular mitigation responsibilities. A message that was reinforced by the land use and planning experts is that the challenges to the sustainability of resources in the AOI transcend jurisdictional boundaries and would require continued cooperative efforts of all stakeholders and institutions, both public and private, over the 25-year planning period. The framing of impact issues and detailed exposition of reasonable mitigation options to the appropriate audiences is therefore a key objective for both the Indirect and Cumulative Effects analyses within the US 281 NEPA process.

There are a number of available mitigation measures that are applicable to achieving the goal of minimizing identified probable impacts associated with future suburban land development activities in the areas where US 281-induced development and other unrelated development are projected to occur. Within the discipline of land development planning and design practices, an emerging practice known as LID has been shown to have high potential for reducing levels of water quality impacts as compared to traditional development designs. In addition, development designs that integrate important environmental resource conservation elements through establishment of strategically located greenbelt areas and corridors, as well as the clustering of buildings and transportation systems may facilitate conservation of critical habitat elements.



The potential applicability and more site-specific definition of these types of mitigation measures to future land development within the AOI should be evaluated and determined through cooperative work among the primary interested parties and other stakeholders in the projected future development areas identified in the AOI. The parties to such a discussion would include: land owners; land development professionals; builders and construction industry representatives; chambers of commerce; local government planning and regulatory officials; regional water authorities, including the EAA, Guadalupe Blanco River Authority, and the Upper Guadalupe River Authority; state resource agencies such as the Texas Parks and Wildlife Department, Texas Commission on Environmental Quality, and the Texas State Soil and Water Conservation Board; transportation planning entities, including the FHWA, TxDOT, the Alamo Regional Mobility Authority (Alamo RMA) and transit authorities; school districts; water and wastewater service providers; non-governmental environmental organizations; and other interested members of the community.

ES.5.7 Cumulative Effects

Cumulative effects are

- Past, present, or reasonably foreseeable future impacts whose environmental effects should be assessed whether or not they are caused by the lead or sponsoring agency or some other agency or person
- Analytically focused on the resources. The cumulative effects analysis requires a sufficient understanding of resource conditions to know if an action may constitute “individually minor but collectively significant actions.” That is, is there a “tipping point” situation that should alert the decision makers and others with resource protection responsibilities, public or private, that a mitigation response should be considered?

Cumulative effects are the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

*The Council on Environmental Quality (CEQ)
(40 CFR 1508.7).*

Resource categories that were identified for evaluation of cumulative effects include:

- Land Resources
- Socioeconomic and Community Resources
- Air Quality
- Water Resources – Surface Water
- Water Resources – Groundwater
- Ecological Resources – Vegetation and Wildlife
- Ecological Resources – Threatened and Endangered Species

Most resource categories were determined to be stable or slightly declining due to continued development in the project Land Resource Study Area (RSA), which is the same area as the AOI. Resources considered to be at more risk and requiring more focused evaluation were surface and groundwater quality and threatened and endangered species, especially the GCWA and its habitat.

Surface Water Quality



The RSA for surface water encompasses portions of Bexar, Blanco, Comal, Guadalupe, Hays, and Kendall counties (**Figure ES-10** and **Figure 5-3**). This RSA includes the watersheds of the rivers and their respective tributaries that have a potential to be indirectly or cumulatively impacted by the US 281 Corridor Project.

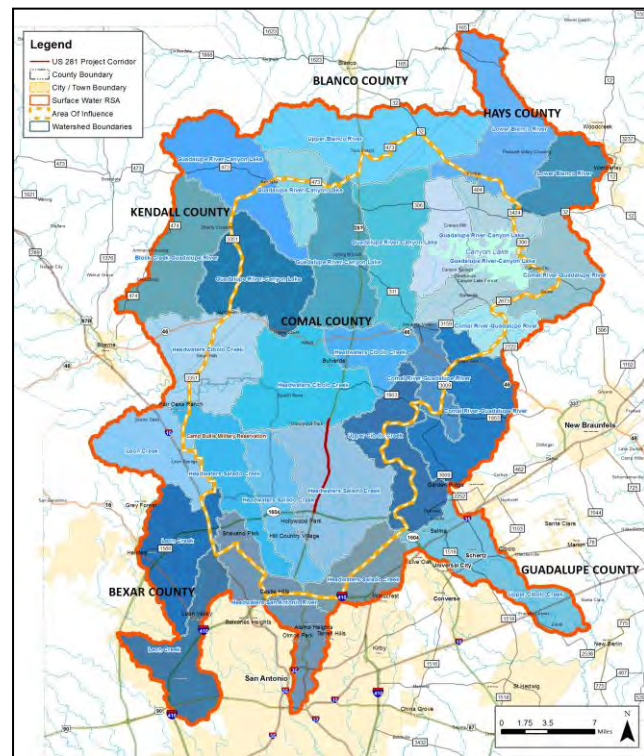
The cumulative effects of land development in most of the drainage areas indicate a substantial potential for cumulative water quality impacts. These impacts would likely be associated with land development and population growth.

The direct, indirect, and other reasonably foreseeable future development effects associated with the US 281 Corridor Project will occur in the upper Guadalupe River, Canyon Lake, Cibolo Creek and Dry Comal Creek drainage areas, with other reasonable foreseeable future development and a substantial amount of past development affecting the Salado Creek and upper San Antonio River drainage areas. When the indirect effects of the project are added to other past, present, and reasonably foreseeable future actions, the extent of development in most of these drainage areas indicate a substantial potential for cumulative effects on water quality. Areas within which cumulative development is likely to occur cover about 17 percent of the Surface Water RSA and about 56 to 58 percent of the Land RSA. While precise locations, amounts, densities, and design characteristics of this future development cannot be ascertained at present, land use conversions to urban uses at this scale will lead to increases in impervious cover that has important influences on the hydrologic regime and water quality. The population densities that have been estimated for 2035 in the different parts of the RSA are indicative of the increased levels of impervious cover may be expected to accompany the project development. In the Cibolo Creek, Salado Creek, and the upper San Antonio River, and in parts of the drainage areas for the upper Guadalupe River and Canyon Lake, these population densities would be expected to result in future levels of impervious cover greater than 10 percent, which indicates probable substantive water quality effects to these water bodies and their tributaries.

Groundwater Quality

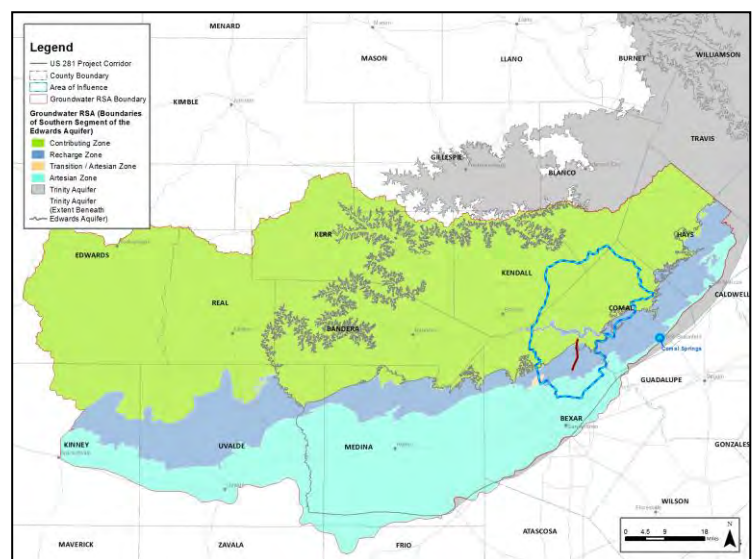
The groundwater RSA includes the

Figure ES-10: Surface water RSA



Source: US 281 EIS Team, 2010
A full page figure can be found in Chapter 5.

Figure ES-11: Groundwater RSA



Source: US 281 EIS Team, 2010
A full page figure can be found in Chapter 5.



contributing, recharge, transition, and confined zones of the Edwards Aquifer, the principal aquifer within the AOI, and extends northeast to include Comal and San Marcos Springs and portions of the Trinity Aquifer (Figure ES-11 and Figure 5-4). The Edwards Aquifer is currently the most relevant and important in regards to San Antonio's public water supply and the Trinity Aquifer provides water to many of the surrounding communities.

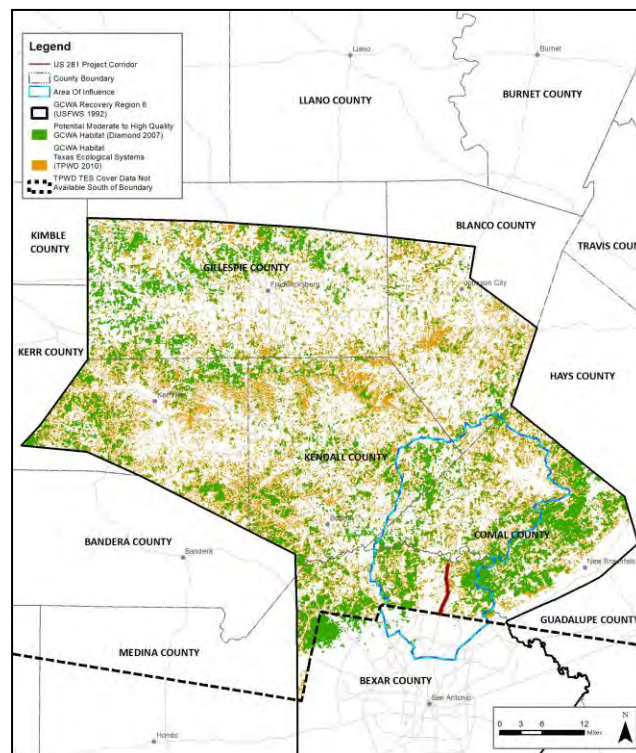
Cumulative water quality effects to groundwater in the Edwards Aquifer are expected to occur as a result of past land development in combination with reasonably foreseeable future development that is unrelated to the US 281 Corridor Project, with proportionally minor incremental effects associated with US 281 Corridor Project-induced development and with localized impacts from direct and encroachment-alteration effects of the proposed project. Such cumulative effects are expected to occur in the Cibolo Creek and Salado Creek drainage areas of the AOI, and to a lesser extent in the Dry Comal Creek drainage area. The level of impact of these cumulative effects will depend on the successful implementation of federal, state, and local water quality regulatory programs and successful planning, design and implementation of additional mitigation measures. The incremental effects of the US 281 Corridor Project - induced development are expected to play a relatively minor, but not inconsequential role in terms of the overall water quality impacts to groundwater.

Threatened and Endangered Species

There are several threatened and endangered species within the threatened and endangered species RSA used for cumulative effects analysis. These areas have unique habitat types such as terrestrial karst and sub-surface aquifer environments as well as oak-juniper woodlands and canyonlands that are all threatened by increasing development pressure. In response to this pressure, TPWD and USFWS have listed many of these species as threatened or endangered in order to protect the species and their habitats.

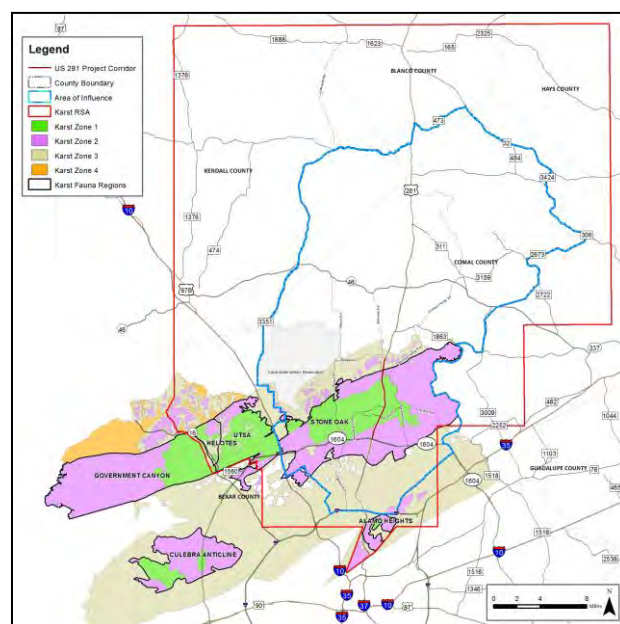
The RSA for the GCWA is Region 6 of the *Golden-Cheeked Warbler Recovery Plan* (USFWS 1992) which is part of the entire breeding range found in Central Texas (Figure ES-12 and Figure 5-7). Currently, the USFWS distribution map for the GCWA shows the species occurring in 37 counties in Texas on the Lampasas Cut Plain, the Edwards Plateau, and the Llano Uplift regions of Texas (USFWS 1992). This analysis focuses on the counties within Region 6 of the Recovery Plan,

Figure ES-12: Golden-cheeked warbler RSA



Source: US 281 EIS Team, 2010
A full page figure can be found in Chapter 5.

Figure ES-13: Karst invertebrate RSA



Source: US 281 EIS Team, 2010
A full page figure can be found in Chapter 5.



including all or portions of: Bexar (portion), Bandera (portion), Blanco (portion), Comal (all), Gillespie (portion), Kendall (all), and Kerr (portion).

The RSA for aquifer and spring-associated species (including aquifer dwelling invertebrates, salamanders and fish) is largely the same as the Groundwater RSA, with the exception that the Aquifer and Spring-Associated Species RSA extends north to San Marcos Springs (**Figure ES-13** and **Figure 5-6**).

The cumulative effects assessment addressed a number of federally- and state-listed species, including surface water aquatic species (mussels and Cagle's map turtle); aquifer species (invertebrates, salamanders and fish); terrestrial karst invertebrates; and birds (GCWA and BCVI). The *surface water aquatic species* within the affected parts of their RSAs are not considered to be critically at risk and probable substantial effects associated with future development are not expected. *Aquifer and spring species*, while critically dependent upon maintenance of variable flow at Comal and San Marcos Springs, are not substantially affected by the proposed project alternatives provided that the assumptions that long term water development projects and habitat protection programs like EARIP are successfully implemented. *Terrestrial karst invertebrates* were not identified in any of the known features along the proposed project ROW during the fall 2010 survey, and none of the currently listed species are known to occur in Comal County, where most of the induced and other reasonably foreseeable future development is expected to happen. It should be noted that areas for which right-of-entry was not granted at the time of survey were not investigated; therefore, determinations regarding species in these areas cannot be made at this time. Potential Bexar County habitat in Karst Zones 1 and 2 occurs within other reasonably foreseeable future development areas, therefore, it was determined that the effects to these potential karst features and their possible invertebrate inhabitants could be substantial.

ES.5.8 Consideration of Mitigation for Cumulative Effects

Mitigation of environmental impacts covers an array of actions that should be considered in the following sequence: (1) avoiding impacts to the maximum extent possible; (2) minimizing impacts; and (3) compensating for any impacts after avoidance and/or minimization measures have been incorporated. Compensatory mitigation can be further defined as the restoration, creation, enhancement, or preservation of resources to offset unavoidable impacts after avoidance and minimization measures have been employed.

Current federal, state and local regulations afford a measure of protection to water quality and endangered species. These include the Clean Water Act, the Endangered Species Act, TCEQ regulations, and the City of San Antonio's Aquifer Protection Program. There are also a number of other governmental and non-governmental programs, policies, and activities currently on-going that will potentially mitigate effects of the proposed project as well as other projects on the major resource categories included in the cumulative effects analysis.

There are numerous specific, on-going resource conservation and preservation programs and projects by governmental agencies and private conservation interests that will individually and collectively minimize direct, indirect, and cumulative effects to environmental resources. Through the implementation of the conservation plans, policies, and regulations that are intended to protect environmental resources and the human quality of life, cumulative impacts associated with past, present, and future



1 development within the area can be reduced.

2 From the longer term perspective, the cumulative effects of land development within the
3 US 281 AOI must be evaluated as irreversible and irretrievable effects on human and
4 natural resources. With future development activities projected to result in substantial
5 land use changes for over roughly a quarter of the AOI, these effects cannot be viewed
6 as other than substantial, with the US 281 project-induced component making a minor
7 but not inconsequential contribution.

8 The network of statutory and regulatory controls available at federal, state and local
9 levels make an important contribution to area resource protection goals. Nonetheless,
10 due to inherent limitations of authority, jurisdictional boundaries, and enforcement
11 issues, these laws, regulations, and ordinances have not prevented the rapid growth in
12 San Antonio and surrounding areas from contributing to a continuing, and in some
13 areas substantial decline in natural resource viability.

14 The capabilities of governmental mechanisms to exert effective land use and resource
15 protection controls in unincorporated areas – like the US 281 AOI, for the most part –
16 has been and will probably continue to be limited. The advent of more effective land
17 development controls in areas outside incorporated cities is not likely to occur in the
18 near or even middle term of the planning horizon of this study. It is axiomatic in most
19 parts of Texas that the political culture is staunchly protective of individual property
20 rights, and resists increases in government spending for conservation purposes.

21 The implications of these observations seem evident: voluntary, cooperative actions by
22 private landowners and developers – in partnership with local governmental and non-
23 governmental organizations – must play an expanding role if trends in declining
24 resource viability are to be reversed and long term sustainability achieved.

25 However, in rapid growth areas like the US 281 AOI, well-intentioned conservation and
26 stewardship initiatives meet the strong headwinds of the real estate market. Effective
27 strategies to accommodate growth demands and preserve property rights, while
28 building on inherent conservation and stewardship inclinations of the landowner and
29 developer communities, will require better understanding and awareness of existing
30 programs and institutional opportunities and even, in some cases, advocacy for
31 modifications of existing laws and ordinances to further facilitate public-private
32 cooperative arrangements. All these efforts require public support, which in turn
33 requires broadening the base of awareness of these issues and opportunities.

34 Many landowners and real estate and development professionals are very cognizant of
35 the economic, as well as environmental, importance of such strategies. The Texas Hill
36 Country “brand” – a nationally recognized image of scenic beauty and environmental
37 quality – is at the heart of the region’s economic vitality and the stability of its land
38 prices. In this sense, the US 281 AOI represents a potential laboratory for furthering
39 strategies of low-impact development, cooperative land stewardship associations,
40 creative development design, and other public-private arrangements aimed at

- 41 • Limiting impervious cover while enhancing the water quality function of
- 42 watersheds
- 43 • Minimizing, avoiding, or reversing fragmentation of habitat in high value areas
- 44 • Preserving rural landscapes and views
- 45 • Voluntary conservation of historic and prehistoric cultural resources
- 46 • Integrating information about potential decline of environmental quality as well



as opportunities for resource conservation and enhancement into existing and new venues of public education and community awareness.

ES.6 PUBLIC AND AGENCY COORDINATION

The US 281 EIS process was conducted with an extensive public and agency involvement program. The FHWA, TxDOT, and the Alamo RMA have provided several opportunities for stakeholders to be engaged and involved in each step of the US 281 EIS process. Comments and input received as part of this outreach helped shape the alternatives and impact analysis used in the US 281 Draft EIS.

ES.6.1 Notice of Intent

A Notice of Intent (NOI) was published in the *Federal Register* on Wednesday, July 8, 2009 and in the *Texas Register* on Friday, July 24, 2009. The FHWA, TxDOT and the Alamo RMA issued these notices to advise the public that an EIS would be prepared for a US 281 Corridor Project on US 281 from Loop 1604 to Borgfeld Drive. In August 2009, letters were sent to federal, state, regional, and local agencies and elected officials with the NOI attached to introduce the US 281 Corridor Project and solicit input on it.

ES.6.2 Public Meetings

To date, three public meetings were conducted to engage the community, share information and ask the community for their comments during the course of the EIS process: August 27, 2009 (Scoping Meeting #1), November 17, 2009 (Scoping Meeting #2), and April 29, 2010 (Public Meeting #3). Comments received over the course of these three public meetings included opposition to tolling, a preference for a lower cost alternative, concern over impacts to natural resources, and a desire that improvements be built as soon as possible. Public meeting summary reports are included in **Appendix N**.

ES.6.3 Community Advisory Committee

A Community Advisory Committee was formed that is comprised of representative groups that live or work along the US 281 project corridor as well as local governmental, quasi-governmental, and environmental organizations. This advisory group was established by the Alamo RMA to further ensure that members of the community, who may be affected by potential improvements to US 281, have ample opportunity to provide input and feedback. The committee advises the EIS team on the following aspects of the EIS process:

- Public involvement and communication activities with stakeholders and the general public related to the development of the EIS
- Development of the Need and Purpose to improve

US 281 Community Advisory Committee

- Alamo Area Council of Governments
- Alamo Sierra Club
- Aquifer Guardians in Urban Areas
- BexarMet (now part of San Antonio Water System)
- Big Springs HOA
- Cavallo Creek Homeowners Association
- Cibolo Canyons Resort Community, Inc
- Comal County
- CPS Energy
- District 9 Neighborhood Alliance
- Emerald Forest HOA
- Encino Park HOA
- Encino Ranch HOA
- Fort Sam Houston/Camp Bullis
- Greater Edwards Aquifer Alliance
- Greater San Antonio Builders Association
- HEB Grocery Company
- Lookout Canyon Property Owners Association
- Mesa Vista Homeowners Association
- Methodist Stone Oak Hospital
- Mountain Lodge HOA
- North San Antonio Chamber of Commerce
- Northeast ISD
- Professional Engineers in Private Practice
- Real Estate Council of San Antonio
- San Antonio Toll Party
- San Antonio Water System
- Stone Oak Business Owners Association
- Stone Oak Property Owners Association
- Summerglen Homeowners Association
- Town of Hollywood Park
- Texans Uniting for Reform and Freedom
- Timberwood Park
- VIA Metropolitan Transit



the US 281 project corridor

- Identification of the range of alternatives for the US 281 project corridor
- Identification and refinement of the Preferred Alternative
- Consideration of potential social, economic and environmental impacts and mitigation measures

Community Advisory Committee meetings were held on August 20, 2009, November 4, 2009, April 7, 2010, October 6, 2010, February 16, 2011, June 22, 2011 and December 7, 2011.

ES.6.4 Community Briefings

An offer was extended to local agencies and community groups to have a representative from the Alamo RMA present information on the EIS at their organizational meetings. This offer was also extended at public meetings, Community Advisory Committee meetings, on the US 281 Corridor Project website, and in the US 281 Corridor Project newsletters. The Alamo RMA provided briefings on the status of the US 281 Corridor Project to any organization who responded to this offer.

ES.6.5 Elected and Appointed Official Briefings

Alamo RMA staff gave US 281 Corridor Project updates at various regularly held meetings of the SA-BC MPO Transportation Policy Board. Alamo RMA staff also provided occasional briefings for local elected officials on the status of the US 281 Corridor Project.

ES.6.6 US 281 Corridor Project Newsletters

The US 281 Corridor Project newsletters were developed to keep stakeholders and the public informed throughout the EIS process and serve as another method of notification for the public meetings. A newsletter was mailed to approximately 38,000 addresses within the US 281 project corridor prior to each public meeting. Both English and Spanish versions of the newsletter were available at all public meetings. Beginning in September 2010, a monthly electronic newsletter was developed and sent to 800 email addresses on the US 281 Corridor Project mailing list. Community Advisory Committee members were encouraged to forward the e-newsletter to their organizations for further dissemination.

ES.6.7 US 281 Corridor Project Website

The “Get the 411 On 281 EIS” website was developed in July 2009 to provide information in one easily accessible location throughout the EIS process. The following information is available on the US 281 Corridor Project website:

- US 281 Corridor Project overview and maps of the US 281 project corridor
- Resources related to the EIS process, schedule and history of environmental documentation in the US 281 corridor
- Federal, state and local agency involvement
- Newsletters and blogs
- An event calendar that displays all upcoming and past public involvement activities
- All materials presented at the public scoping meetings and the public meeting



- (exhibits, presentations and meeting summaries)
- Information relating to the CAC (membership roster, meeting dates, presentation materials and meeting summaries)
- Peer Technical Review Committee membership roster and meeting summaries
- A mailing list sign-up and a method to submit comments
- Frequently Asked Questions
- Contact information for the Alamo RMA

ES.6.8 Social Media

Social media is an important component of how people discover, read, and share news and information. The EIS used social media including Twitter (<http://twitter.com/411on281>), Facebook (<http://www.facebook.com/411on281>), Socializer and blogs to share factual EIS information and advertise public meetings.

The following disclaimer is located on the US 281 Corridor Project website regarding the use of social media:

“Comments made on these sites (Twitter, Facebook, Socializer, blogs), herein called ‘social media sites’ will not be included or evaluated as part of the ongoing Environmental Impact Statement decision-making process. Opinions expressed on these social media sites and any corresponding comments are the personal opinions of the original authors and do not represent the official opinion of the Alamo Regional Mobility Authority, board members, staff or consultants working on this project. All official documents addressing the Environmental Impact Statement may be accessed through the principal website established for the US 281 EIS itself.

These social media sites are available for and intended to encourage public dialogue about the project and are, as such, provided for outreach and informational purposes only.”

ES.6.9 Agencies Roles and Responsibilities

Section 6002 of Public Law 109-59, “Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users,” (SAFETEA-LU) requires the identification of lead, cooperating, and participating agencies in the development of the EIS.

FHWA is a mode within the U.S. Department of Transportation and lead Federal agency responsible for NEPA analysis, management of the SAFETEA-LU Section 6002 process, and independent review of the EIS. FHWA will ensure that the US 281 Corridor Project sponsors (TxDOT and the Alamo RMA) comply with all design and mitigation commitments in the Record of Decision (ROD) if a build alternative is selected and that the EIS is appropriately supplemented if changes in the US 281 Corridor Project become necessary.



US 281 EIS Cooperating Agencies:

- U.S. Army Corps of Engineers
- U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service

US 281 EIS Participating Agencies:

- BIA-Anadarko
- Tribal Nations: Apache Tribe of Oklahoma, Wichita and Affiliated Tribes, Alabama-Quassarte Tribal Town, Caddo Nation of Oklahoma, Comanche Nation of Oklahoma, Kiowa Indian Tribe of Oklahoma, Mescalero Apache Tribe, Seminole Nation of Oklahoma, The Delaware Nation, Tonkawa Tribe of Indians of Oklahoma
- Camp Bullis
- Texas Historical Commission
- Texas Parks and Wildlife Department
- Texas Commission on Environmental Quality
- Bexar County
- City of San Antonio
- Town of Hollywood Park
- Comal County
- City of Bulverde
- Edwards Aquifer Authority
- San Antonio Water System
- San Antonio River Authority
- San Antonio – Bexar County Metropolitan Planning Organization
- VIA Metropolitan Transit
- Alamo Area Council of Governments
- Alamo Area Rural Planning Organization
- BexarMet (now part of San Antonio Water System)



TxDOT, as US 281 Corridor Project sponsor and direct recipient of Federal-aid highway funds, is a joint lead agency. The “project sponsor” is defined as the agency or other entity, including any private or public-private entity, which seeks approval of the U.S. Department of Transportation for a highway project. TxDOT’s responsibilities mirror those of the federal lead agency.

The Alamo RMA is the US 281 Corridor Project co-sponsor, joint lead and implementation agency, primarily responsible for preparing the environmental studies and the EIS document, and conducting required public involvement activities.

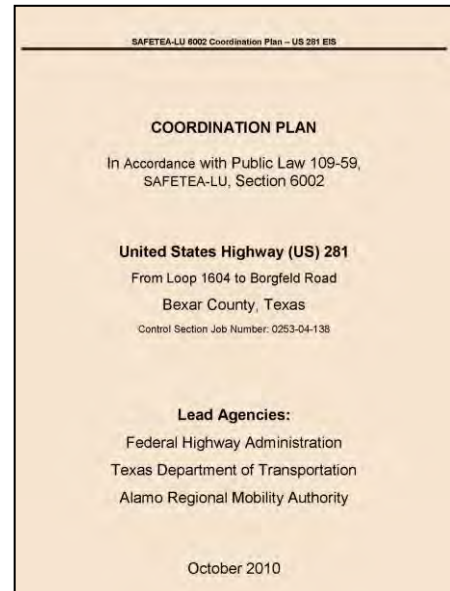
The joint lead agencies share in the responsibility to manage the SAFETEA-LU Section 6002 process, prepare the EIS, and provide opportunities for public and participating/cooperating agency involvement.

All federal, state, tribal, regional or local governmental agencies that may have an interest in the US 281 Corridor Project were invited to serve as participating agencies. A cooperating agency, on the other hand, is a federal, state, tribal, and local agency that has jurisdiction by law or special expertise with respect to an environmental impact involved in the US 281 Corridor Project. Cooperating agencies are also “participating agencies” (agencies with an interest in the US 281 Corridor Project), but have a higher degree of authority, responsibility, and involvement in the environmental review process than participating agencies. The U.S. Army Corps of Engineers, for example, is specifically responsible for the issuance of permits under Section 404 of the Clean Water Act.

In an effort to provide for more efficient environmental reviews for project decision making, SAFETEA-LU implemented the development of a coordination plan for all projects for which an EIS is prepared under the NEPA. The plan’s purpose is to coordinate public and agency participation in and comment on the environmental review process for a project or category of projects. The FHWA, as lead Federal agency, and TxDOT and Alamo RMA, as joint lead agencies, prepared a Coordination Plan to accompany the EIS. FHWA, TxDOT and the Alamo RMA solicited comments from the public and from participating and cooperating agencies regarding the Need and Purpose for the proposed project, project alternatives, methods to be used in evaluating the project alternatives, and the level of detail required in the analysis of each project alternative. The Coordination Plan describes the roles of the lead agency, joint lead agencies, and the cooperating and participating agencies.

ES.6.10 Agency Scoping Meetings

Agency scoping meetings were held on the same days as Public Scoping Meeting #1 and Public Scoping Meeting #2. All cooperating and participating agencies were invited to attend.





ES.6.11 Peer Technical Review Committee

A Peer Technical Review Committee was created in an effort to continue a partnership with participating and cooperating agencies for the EIS. The FHWA, TxDOT and the Alamo RMA formed this committee to foster expert oversight and gather input from participating and cooperating agencies at key coordination points throughout the EIS process including:

- Development of the Need and Purpose to improve the US 281 corridor
- Identification of the range of alternatives for the US 281 corridor
- Collaboration on methodologies to be used
- Completion of the Draft EIS
- Identification and refinement of the Preferred Alternative
- Completion of the Final EIS

To date, the Peer Technical Review Committee has met four times: November 10, 2009, March 25, 2010, October 28, 2010 and June 22, 2011.

ES.6.12 Scoping Concurrence

Under SAFETEA-LU the FHWA and its partnering lead agencies, TxDOT and the Alamo RMA are required to provide an opportunity for involvement by cooperating and participating agencies and the public in defining the Need and Purpose, the range of alternatives, and methodologies to be used and level of detail required for the analysis. Opportunities for involvement by agencies and the public have primarily been in the form of reviews of the Section 6002 Coordination Plan, participation in meetings, or review of project related materials online at www.411on281.com/us281eis/. Following the three public meetings held during 2009 and 2010, FHWA and the joint lead agencies developed Scoping Concurrence memoranda to concur on the following:

- As early as practicable during the US 281 environmental review process, cooperating and participating agencies and the public were provided with opportunities for involvement in defining the US 281 Need and Purpose
- Following the opportunities for cooperating and participating agencies and public involvement, Alamo RMA, TxDOT and FHWA agreed on the US 281 Need and Purpose statement
- The US 281 Need and Purpose statement includes a clear statement of the objectives that the proposed improvements are intended to achieve
- As early as practicable during the US 281 environmental review process, cooperating and participating agencies were provided with opportunities for involvement in defining the methodologies to be used and the level of detail required in the evaluation of alternatives in the US 281 EIS;
- Following the opportunities for cooperating and participating agencies involvement, Alamo RMA, TxDOT and FHWA agreed on the methodologies to

US 281 EIS Peer Technical Review Committee

- Federal Highway Administration (Committee Chair)
- Alamo Regional Mobility Authority
- Texas Department of Transportation
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Texas Parks and Wildlife Department
- Texas Commission on Environmental Quality
- Edwards Aquifer Authority
- Bexar County
- San Antonio – Bexar County Metropolitan Planning Organization
- VIA Metropolitan Transit
- San Antonio Water System
- City of San Antonio
- Texas Historical Commission

Peer Technical Review Committee Meeting





be used and the level of detail required in the evaluation of alternatives in the US 281 EIS

- As early as practicable during the US 281 environmental review process, cooperating and participating agencies were provided with opportunities for involvement in defining the range of alternatives to be considered in the US 281 EIS
- Following the opportunities for cooperating and participating agencies involvement, Alamo RMA, TxDOT and FHWA agreed on the reasonable Proposed Build Alternatives to be evaluated in detail in the US 281 Draft EIS
- Following the opportunities for cooperating and participating agencies involvement, Alamo RMA, TxDOT and FHWA agreed that the reasonable Proposed Build Alternatives meet the Need and Purpose of the project

ES.7 AREAS OF CONTROVERSY AND SIGNIFICANT UNRESOLVED ISSUES

Funding for the US 281 Corridor Project is controversial. As noted previously, the project is included in *Mobility 2035* as a six-lane expressway with four non-toll lanes and two managed lanes from Loop 1604 to Stone Oak Parkway and six managed lanes from Stone Oak Parkway to Bexar/Comal County line with non-toll direct connector ramps at the northern half of the US 281 interchange with Loop 1604. *Mobility 2035* is the region's approved, financially constrained long-range transportation plan. For several years the SA-BC MPO's Transportation Policy Board has entertained considerable discussion and public comment on the matter. During the course of the EIS process, members of the public and local organizations opposed to tolling of transportation facilities have contributed many comments at public meetings and at CAC meetings calling for US 281 improvements to be funded entirely from non-toll sources. As stated earlier, the Bexar County region has more transportation needs than funds, and innovative funding approaches that combine federal, state, and local funding with toll financing have been identified for several projects in the long-range plan. The SA-BC MPO will continue to consider new financing initiatives and future updates of the SA-BC MPO's *Mobility 2035* could result in a change in project funding for the US 281 Corridor Project. Proposed Build Alternatives are therefore analyzed in this Draft EIS under both toll and non-toll scenarios.

The potential impact of the US 281 Corridor Project on the Edwards Aquifer is another frequently expressed concern. This Draft EIS documents the potential direct, indirect and cumulative impacts on the Edwards Aquifer and the aquifer and spring dependent species that are federally-listed Endangered or Threatened. The Draft EIS also addresses possible project-specific mitigation measures as well as the efforts by local, regional, state and federal public agencies to maintain the quantity and quality of water from this important resource.

Additionally, the Draft EIS does not recommend a Preferred Alternative. The Preferred Alternative would be identified based on the analysis in the Draft EIS and comments received from resource agencies and the public during the 45-day review period as well as 10 days following the public hearing. The Preferred Alternative would then be identified in the Final EIS.



ES.8 ADDITIONAL ACTIONS

This Draft EIS has been developed to comply with NEPA and acts as the public disclosure document for this project by presenting the anticipated environmental consequences of each alternative with possible reasonable and feasible mitigation measures. As part of the NEPA process, the Draft EIS will be circulated for a required 45-day review and comment period. During the 45-day period, the document will be made available to interested and concerned parties including residents, property owners, community groups, the business community, elected officials, and public agencies. After the 45 day period, a public hearing will be held within the study area to obtain comments. The purpose of the public hearing is to provide interested parties an opportunity to formally submit comments on the project and the analysis contained in the Draft EIS prior to identifying the Preferred Alternative. Following public and agency review and comment period of the Draft EIS, additional engineering and environmental studies will be completed, as needed, and responses will be prepared to address comments offered during the 45-day review period as well as 10 days following the public hearing.

If a Proposed Build Alternative is recommended, all project-specific commitments and conditions of approval, including resource agency permitting, compliance, and monitoring requirements would be stated in the Final EIS and/or ROD prepared for the US 281 Corridor Project. These project-specific commitments and conditions for approval may vary depending on which alternative is identified as the recommended Preferred Alternative. The document will also reflect the comments received during the review of the Draft EIS. Upon review of the Final EIS, the FHWA will publish a Notice of Availability (NOA) and allow for a 30-day wait period. FHWA will issue a ROD no sooner than 30 days following publication of the NOA. If a Proposed Build Alternative is selected, this would allow the project to be advanced to final design, ROW acquisition, and construction phases. Mitigation monitoring would be conducted by TxDOT, the Alamo RMA, and other appropriate federal, state, and local agencies to ensure compliance with the agreed upon mitigation measures.



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